CPC

December 1970

TV Communications

The Professional Journal of Cable Television

In This Issue...

Subscriber Promotion

Racks, Panels and Consoles

Two-Way System Design

New Jerrold "sleep saver" sweeps CATV without interrupting subscriber service

Ever sweep your system in the middle of the night only to find you have a lot of night owls for subscribers? Ever wonder how to save on high overtime rate for technicians? Or how to sweep your system in prime time without getting a single complaint?

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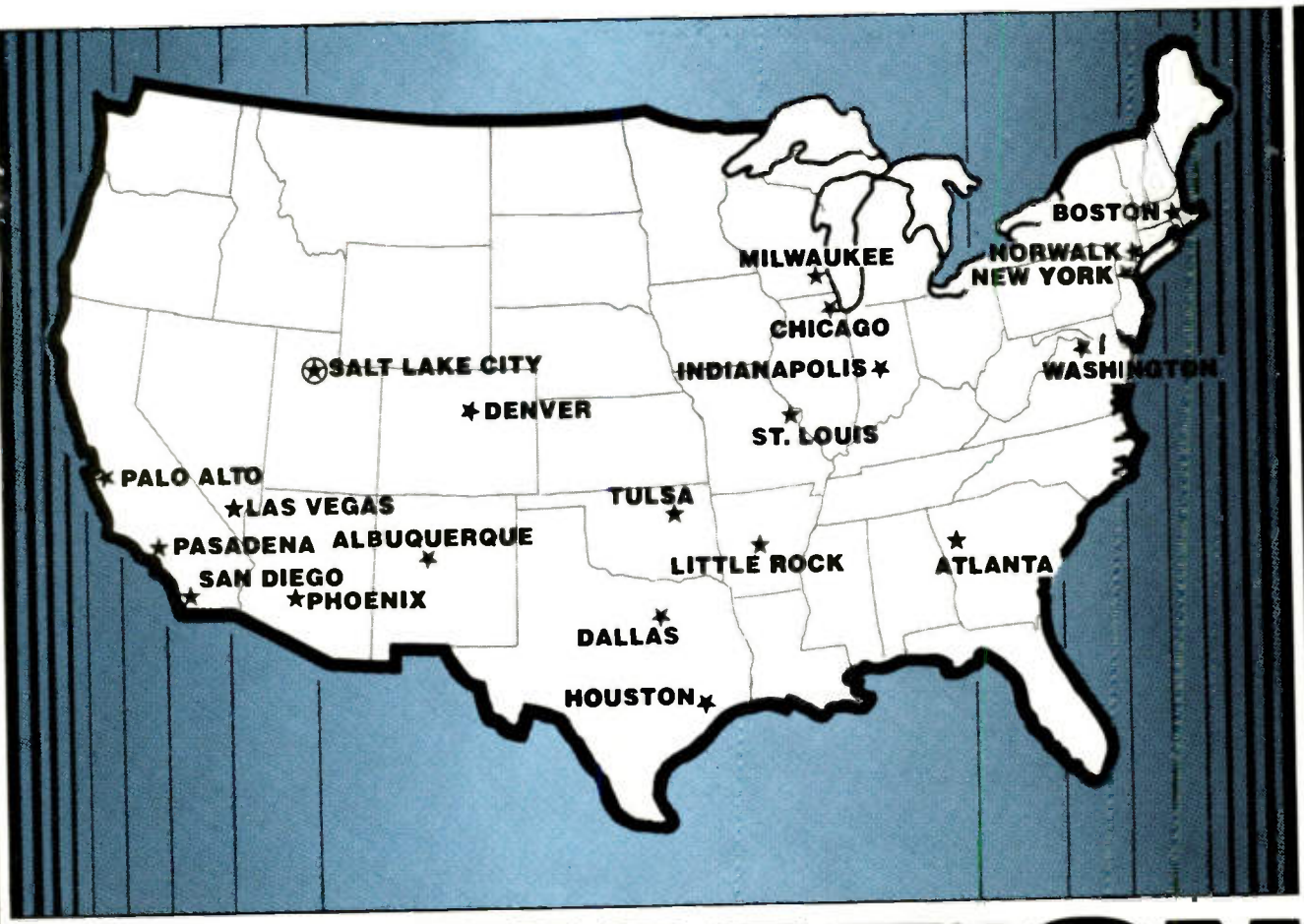

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TALK TO TELEMATION — **TELEMATION** — **THE ON COMPANY**

December 1970, Volume 7, Number 12

TV COMMUNICATIONS is published on the first day of each month by Communications Publishing Corporation, 1900 West Yale, Englewood, Colorado 80110. Second Class postage is paid at Englewood, Colorado with additional entries made at Oklahoma City, Oklahoma. SUBSCRIPTIONS: One Year, $10, Two Years, $17, Three Years, $26. Foreign subscriptions (except Canada) add $4 per year.

A CATV STUDIO IN A BOX: $795.

Program origination is not a fad. It's a fact of financial survival: CATV operators must offer more than improved reception if they're to gain and hold additional subscribers.

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TV Communications

The Professional Journal of Cable Television

CATV TECHNICIAN SECTION

DEPARTMENTS

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For twenty-one years we've been serving satisfied CATV customers. And they stay satisfied. We don't like to see people cranky in California, moody in Maine, teed-off in Texas or cantankerous in Kentucky. That's why we're so strong on service. And depth of inventory. So the next time you need cable, strand, hardware, tools or electronics, call Pruzan collect. And smile.

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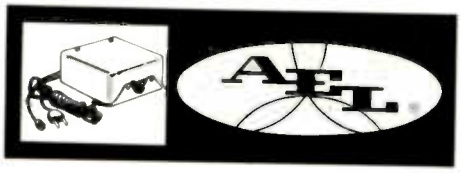

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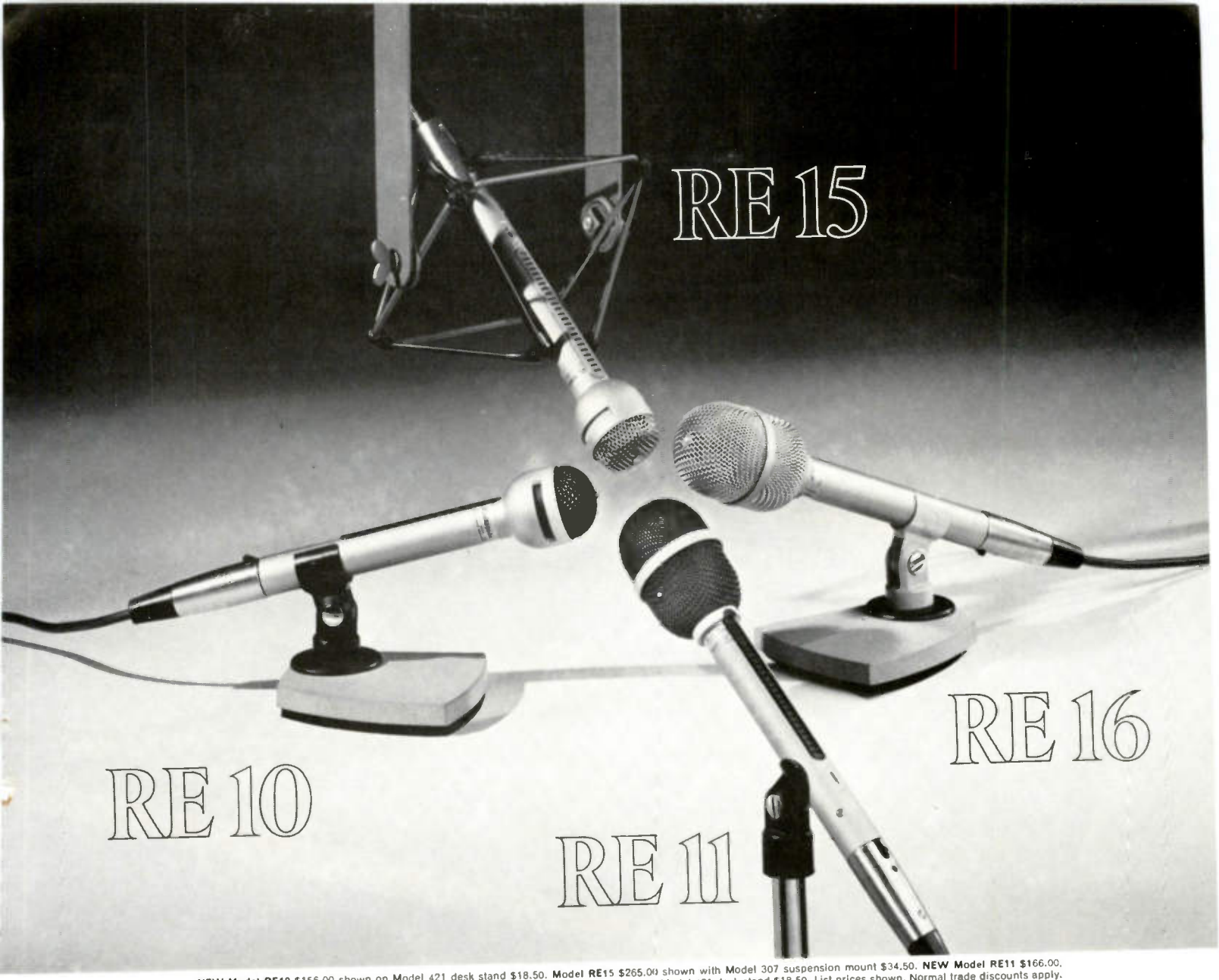
December, 1970
C110



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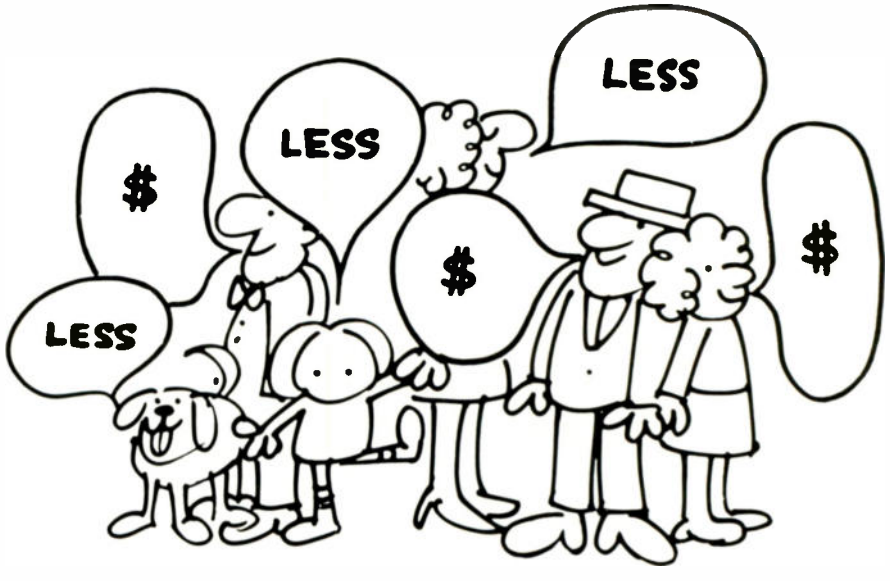

The TVC Viewpoint

EDITORIAL

Robert A. Searle
Editor

OEO Hits Nail on Head

In its recent filing with the FCC (see Late News Briefs, page 27), the Office of Economic Opportunity made two points which warmed the heart of this editor. First, the OEO told the Commission that it should establish "a Federal policy that permits and encourages the growth of cable systems at this time."

That isn't exactly an original idea, but its sure nice to hear someone outside our industry say it . . . especially a Federal agency which is obviously concerned with "the public interest" that the FCC has told us about so often.

The other point in the OEO filing which I liked was the idea of taking the dollar signs out of franchise bids. Again, this is not a new concept, but it could well be an important factor in determining the true value of cable communications to the American people.

Cablemen have long recognized that the strength of their individual operations, and of our industry as a whole, lies in the acceptance of and demand for their service by the general public. But the definition of "service" has begun to change . . . and its going to change a lot more. Everybody and his brother is talking about the fantastic potential of wired communications these days, and sooner or later the public (and their representatives at all levels of government) are going to *demand* that this potential be tapped to the greatest degree possible.

Now, it seems to me that if cablemen aren't concentrating on developing the "blue sky" possibilities of cable into viable parts of their operations, then other interests may come out ahead of us at our own game. Even the OEO, despite its basically favorable position on CATV growth, suggests that Congress consider common carrier status for CATV. In other words, they are concerned that system operators may not be ready, willing and able to utilize their own technology as well as other parties who would simply lease channel space.

Getting back to taking the dollars out of franchise bidding, this is the best possible way to focus the full attention of cable operators on expanding their services to the greatest practical extent, especially in the major markets where most franchise competition still lies ahead.

OEO makes the same point, but approaches it from the other side, telling the Commission, "OEO believes that it would serve the public interest to remove the fiscal temptation from the picture, so that the city's attention in franchising can be refocused on striking the best possible bargain for its residents in terms of quality and variety of services to be made available by the cable company."

The main battle cry of cablemen has been that the public should get what it wants . . . and I guess most of us believe that it *will* get what it wants, eventually. So unless we are willing to become merely common carriers, we need to keep ahead of that public demand in terms of rapidly expanding services on the coax. And the surest way of putting the emphasis on service is to remove all emphasis from the percentage of gross being promised to the franchising agency.

Perspective

on the news

B. Milton Bryan
Executive Editor

Local origination attracts ever-increasing attention from both inside and outside the industry. From outside the cable business, a move on the part of the Radio and Television News Directors Association to make room for cable system news directors in their ranks. Also from the outside, a decision by Standard Rate and Data Service (SRDS) to add a CATV section to its Television Catalog next year.

Inside the CATV arena, three well-known system operating firms have announced commitments in the software supply field. Cox Cable Communications will joint venture with ad agency giant Young and Rubicam in pilot work on programming and time sales. The four-month test project will take place on the Cox system in Warner Robins, Georgia. (See page 74 for more information on this.)

Triangle Publications, with holdings in CATV, radio and television broadcasting as well as TV Guide magazine, is moving into the production of software for cable through its Educational Services Group. Initial offerings will be educational programs formatted around the "Educasting" concept of student-response.

Meanwhile, MSO Tele-Communications, Inc. has increased its commitment in the software business through the acquisition of National Telefilm Associates. This move, made through subsidiary TCI Programs, Inc. will give the firm access to NTA's 2000 feature films, 1200 half hours, and 1700 cartoons and short subjects.

Another plug for local origination, this time from the White House, has come about as a result of campaign coverage cablecast on the Denver and Ephata, Pa. cable system. D & E Cable TV taped complete coverage of President Nixon's campaign activities in that area, for cablecast to seven communities they serve. White House later requested 45-minute tape.

Good publicity for the cable industry in general came from Signature Magazine article which describes both the future potential of CATV and its present regulatory "straight jacket." The five-page feature in the November issue of the Diners Club publication pulls no punches in its comments on the FCC's protectionist position on broadcast versus cable.

Magnavox acquisition of Craftsman bears out prediction on this page two months ago, but will probably not be the only such acquisition of industry supplier before the market thaws. Major firms outside cable industry will find several well-known CATV manufacturers more than a little interested in discussing acquisition, due to continued pressure from both slow sales and tight money. Some improvement has been noted in both of these areas lately, but it will take big improvements to put some suppliers back on their feet.

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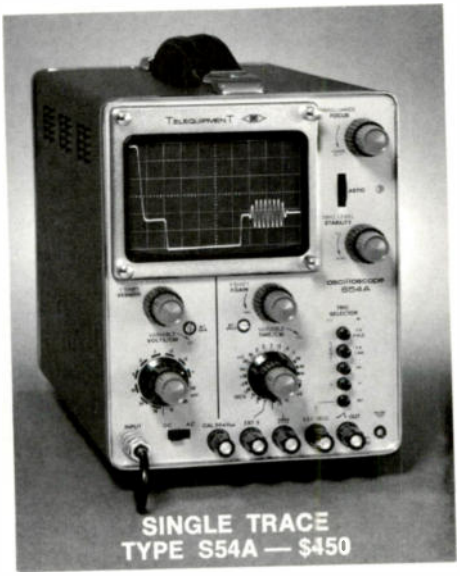

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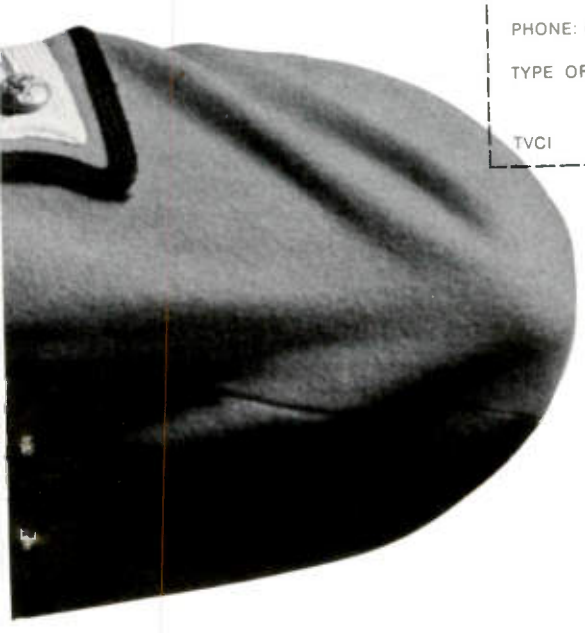

PARAGOULD CATV TOWER DESTROYED...SERVICE RESTORED THANKS TO E.R.S.

After tornadic winds leveled Paragould Cablevision Company's 450 ft. tower September 4th, 1970, an E.R.S. temporary tower restored partial service in 24 hours and full service to all CATV customers in 48 hours!

This quick response by Emergency Restoration Service (E.R.S.) prevented loss of thousands of dollars in revenue as well as permanent loss of subscribers who could not be expected to wait a month or more until a new tower could be constructed.

HOW MUCH TIME AND MONEY WOULD YOU LOSE IF YOUR TOWER WERE DESTROYED BY HIGH WINDS, VANDALISM, STRUCTURAL FAILURE, ICE OR LOW FLYING AIRCRAFT?

Let us tell you how E.R.S. can protect your service and revenue anywhere in the United States. Call us collect at 314 966-2116, today!

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Broken tower of Paragould Cablevision Co. hidden by trees.

Fifteen man crew assembling 300 ft. tower.

E.R.S. semi-trailer truck loaded with emergency tower, antennae, tools and coaxial cable.

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Management Guidelines

D. Stuart MacPhail
Managing Editor

Delegate...To Whom?

The past two months this column has focused attention on the subject of authority delegation. Not all of your subordinates are qualified to handle the type of authority and responsibility you may wish to delegate.

To whom should you delegate? Delegate only to immediate subordinates. Delegating to someone who reports through a third person invites resentment or misunderstanding from the man in the middle, your immediate subordinate.

Delegate only to people whom you can trust, who will use their authority with skill. Also, match delegation to subordinates' special abilities.

This is the thorny one: *How should responsibilities be delegated?* Delegation should be broad, to give the delegate real responsibility, and to enable the manager to manage his entire job, with time left over to help his superior with special assignments.

Therefore, delegate a function, rather than a specific task. Authority should always be delegated clearly and concisely, in writing if necessary. State explicitly the results you require, but let your subordinates work out his own way of achieving them.

There are some special "don'ts" in delegation. Don't delegate to one subordinate the authority that you have already delegated to someone else. In pointing out limitation of, or restrictions upon, delegated authority be careful not to inhibit the delegate's use of his new authority or make him reluctant to tackle the job.

Don't delegate to the detriment of your proper staff and line balance, nor to the impairment of over-all morale.

How can you maintain control, once you have delegated authority? If more managers knew the answer to this, they'd delegate more authority more often. It's not always easy to control delegation, but it is usually possible.

There are several ways to do it. First, and most important, establish the kind of working relationship that makes members of your staff want to keep you informed. This means that you should maintain a friendly atmosphere that encourages free discussion. It also means that your subordinates should have confidence in your ability to understand their problems.

The requirements for successful delegation are stiff. Stiff as they are though, the benefits are enormous. The manager acquires considerable freedom from routine, repetitive functions. As a result, he has more time to spend on his primary management duties, administering, supervising, planning and developing the potential of his cable system.

Just as important, delegation gives subordinates invaluable experience in decision making. This leads to increased individual responsibility, greater pride in work, higher morale and strong initiative. Practiced throughout an organization, delegation becomes a source of vitality and progress. TVC

LETTERS

Readers Correct Authors

● Just a note to inform you and Norman Penwell, by copy, that there is a company manufacturing a UHF converter with a local oscillator stability greater than .005%. C-COR Electronics introduced this unit at the 1970 NCTA Convention; and as Norm suggests in his article, the unit uses a tight tolerance crystal, a crystal oven and stable circuitry.

Recent tests indicate a stability of 0.0003% over a temperature excursion of 154 degrees F. This unit utilizes a balanced Schottky diode mixer and exhibits the normal quality engineering and manufacturing trademarks for which C-COR is so well-known.

I hope Norm's lack of awareness of this unit (Page 73 of the September issue of *TV Communications*) will not worry too many of your readers. We do have an answer to the problem.

Byron D. Jarvis
Vice President
C-COR Electronics, Inc.

● With reference to Mr. Jack A. Rickel's multiple-part review of Video Recording Equipment in your recent issue, I find several points in error that I feel are important to your readers. This is not to be construed as a personal criticism of Mr. Rickel's otherwise excellent work.

There is no helical recorder on the market that has a head replacement cost of $600. All are under $200, and that would cover outside labor as well.

One inch, one hour tape for helical recorders lists at about $60 per reel. The price of $45 would only come into being if the user were buying at least a 100 reels. (An investment of $4,500 that most system owners would avoid having in stock, or committing for).

TV Communications continues to be the sole *professional* source of information on local origination, and I hope this devotion to this most important area continues.

Marc H. Plitt
President
Video Implementation Corporation

It's nice to know that readers follow our articles closely enough to catch errors when we make them. Video head replacement does cost less than $200 for most helical-scan video tape recorders. However, on the matter of tape cost, our latest IVC price list shows one-hour, one-inch recording tape at $45.30 in quantities of one to six rolls.

Let us know if you find other errors.

Jack A. Rickel
Contributing Editor

Educator Seeks Address

● In a recent article you mentioned the Green Valley Cable Nursery School, a pre-school series in production by Dr. Rudolph Flothew of the Learning Achievement Corporation and National Telesystems Corporation.

Would it be possible to have an address that I could write to for additional information?

Steve Autor
Director, Program Development for Gifted Children
School District 118
Danville, Illinois

Information on this program can be received by writing directly to Mr. Jack Mann, National Telesystems Corp., 6362 Hollywood Blvd., Hollywood, California 90028. —Ed.

Guidelines for CATV Managers

● I particularly enjoyed your

October issue of *TV Communications.*

D. Stuart MacPhail's column on the delegation of authority was so apropos that we sent it to the managers of our 42 systems.

Marc B. Nathanson
Director of Marketing
Cypress Communications Corp.

The third and final installment of that series appears this month on page 19. Thanks for the kind words—Ed.

NCTA Promotional Program

• Just wanted to say thank you for running our membership development ad free of charge. (See page 33.) The cooperation you have always extended is greatly appreciated by us at NCTA.

As you know, we hope to have a new and interesting series of membership ads to follow in the next several months, and I hope you'll see your way clear to run them in *TVC* at no charge.

Obviously, our own membership Bulletin is not an effective medium for reaching new members; therefore, the broad industry exposure afforded by *TVC* and other trade publications is our only way of reaching potential members in print. Of course, we could not obtain this exposure without your generous contribution of free advertising space, since the demands on NCTA's resources are so great for other purposes at this time.

Don Witheridge, Director
Public Relations
National Cable Television Assn.

Design Info Sought

• At one time you had some information in your publication for designing and building Cable TV offices, garages, etc. all under one roof.

Our plans are to start such a project in the very near future and any information or reprints of previous publications would be greatly appreciated.

Will you please send me anything you have that would be of help to me in this endeavor? Please send the information and the bill to the above address.

Donald W. Johnson, Engineer
Ottumwa TV FM Inc.

A couple of photocopied articles are on their way for your reference. Hope that they will be of interest to you. The Meadville, Pa. system is really a "model" and perhaps you would be interested in contacting them.

Additional helpful contacts would be Mr. Jack A. Rickel, 1629 K. St., Washington, D.C. 20006 and Mr. Ken Lawson, 4780 Fortuna Way, Salt Lake City, Utah 84117 . . . authors of the articles we sent your way. Let us know if we can be of any further assistance.—Ed.

Man Your Battle Stations!

• During the last few years, snowmobiling has become one of the favorite sports, during the winter months, here in the north country. It also has become one of

the problems of the CATV technician. This is true especially if your head-end is located on a well-used snowmobile trail.

The two-cycle engines of these snowmobiles create a lot of electrical interference that can be seen in the CATV customer's set as a machine goes screaming past your head-end.

Enclosed you will find one solution to this situation. We will use this remedy only as a last resort.

Remedy for Snowmobile Interference

Here in Ironwood, we plan on trying a fence first.

Russell (Bud) Johnson
System Engineer
American Cablevision Co.

Cablecasting Help Offered

● I would like to thank you for a very complete and well-written article about our local origination efforts here in Palm Desert (October, page 46). We feel that you have expressed very well our concept of programming at the local level. We believe that the programs that we are producing can be put together by other operators in their own systems to keep local origination a "local expression."

We would be most happy to exchange ideas with other systems and help them in their cablecasting efforts.

I feel that as more systems engage in the production of local material to afford true local expression, the better image we will have as an industry.

Tony Acone
Program Director
Coachella Valley Television

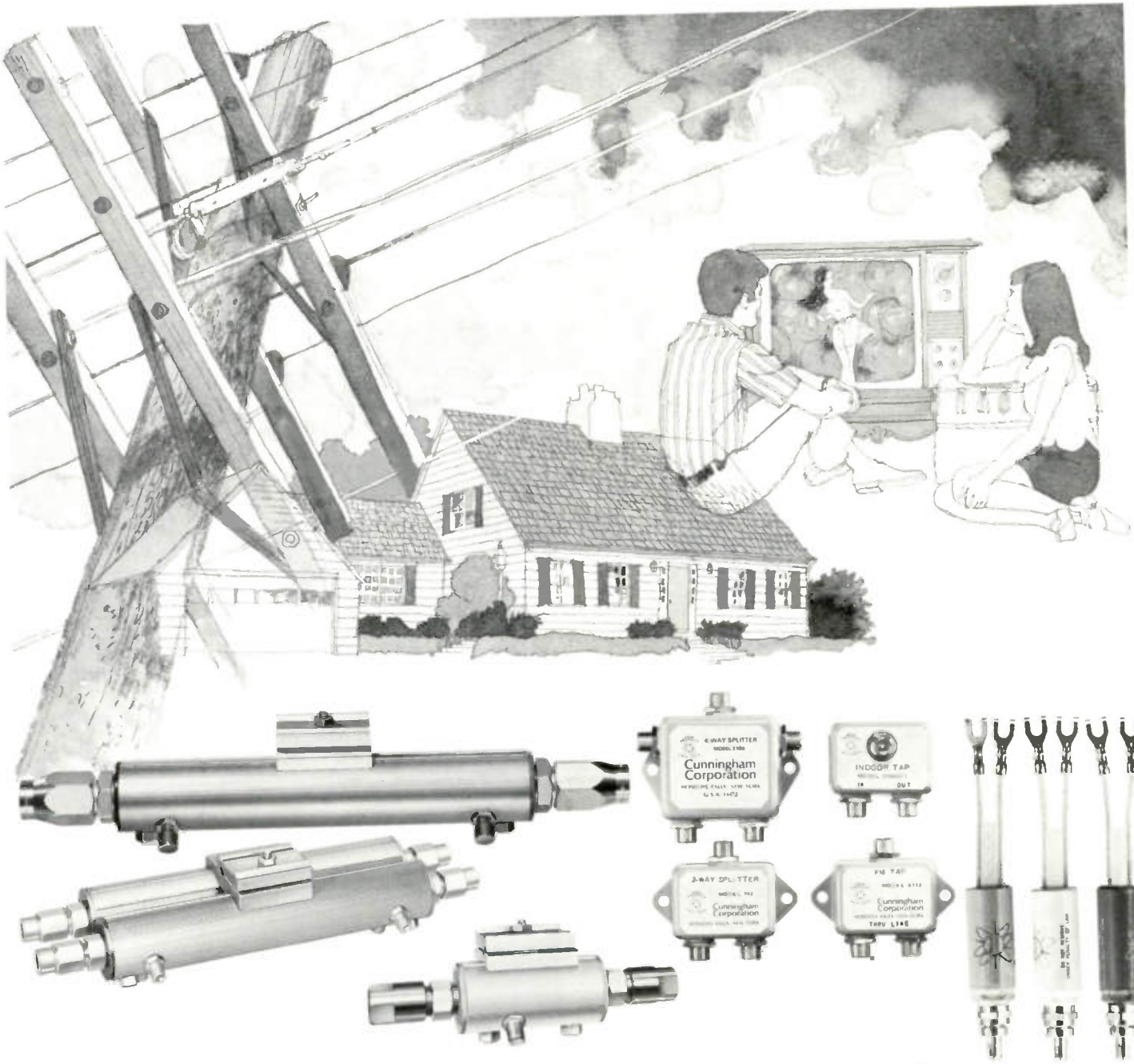
Tony's address (for exchanging program ideas): P.O. Box 368, Palm Desert, Calif. 92260.— Ed.

Election Returns Successful

● I genuinely am grateful to you for the unexpected payment for the article submitted by me based upon my experience in cablecasting.

We had a most successful election return cablecast starting at 7:30 p.m. and signing off the air at 2:55 a.m. The Famous Department store of Ottawa, Illinois, presented 60 second "live" commercials, models wearing the store's latest fashions, other commercials were presented through a sound tape, sound film, slide and audio.

Xenny W. Mitchell
Director of Cablecasting
Jerrold-Midwest Systems



Aqua CATV distribution components Available for immediate delivery

That's right. We said IMMEDIATE DELIVERY. Because the complete Aqua line of CATV devices is now being manufactured and stocked by Cunningham Corporation . . . for over 16 years a leader in the design and manufacture of audio-video switching devices. It was only a matter of time before Cunningham entered the fast growing CATV field . . . because these products dovetail so beautifully with our own line of switching products. And we couldn't have picked a better line than Aqua . . . a line that has been proven reliable in applications from coast-to-coast.

The full range of these superior CATV products which are now in stock and ready for immediate shipment—includes:

- **Splitters (2-way and 4-way)**
- **Outdoor Directional Taps**
- **Outdoor Dual Taps**
- **FM Taps**
- **Off-air Rejection Transformers**
- **Matching Transformers**

And we've made certain that every Aqua device meets Cunningham's strict requirements for design excellence, quality and built-in reliability. A look at the new Cunningham/Aqua CATV Equipment Catalog will give you some idea of what we mean. Send for your free copy today. Then let us prove to you that we mean it when we say "IMMEDIATE DELIVERY."

Cunningham Corporation,
10 Carriage Street
Honeoye Falls, New York 14472

Cunningham Corporation

AQUA PRODUCTS CATV CCTV

SUBSIDIARY OF GLEASON WORKS

Construction Reports

Northeastern States

Shelter Island, N.Y., Petra Cablevision of Patchogue has completed new towers . . . **Columbus, Ohio.** Communications Properties, Inc., has announced final agreement to start an engineering study . . . **Bally, Bechtelsville, and Bovertown, Pa.** Conestoga TV Cable is presently rebuilding the system that feeds these towns.

Clearfield, Pa., Clearfield TV Cable Co., has announced that building on its new tower is on schedule . . . **Franklin, Pa.,** Franklin Coaxial Cable Co., six miles of new television cable has been installed in the Sandycreek Township . . . **Whitehall and Castle Shannon, Pa.,** Centre Video has reported construction under way.

Midwestern States

Decatur, Ill., General Electric Cablevision Corp., first phase of construction . . . **Marion, Ill.,** Cable Information Systems, completed almost half of cable laying . . . **Ransom, Ill.,** Grand Ridge Television Cable Co., nearly completed installation of its system.

Richmond, Ind., Clearview CATV has set bases for a 400-foot tower . . . **Fredonia, Kansas,** Fredonia Cable Inc., nearly completed a 640-foot cable TV tower . . . **Coldwater, Mich.,** Coldwater Cablevision started building a 559-foot reception tower . . . **Fairmont, Minn.,** Cable TV, building new $17,000 tower to replace existing tower.

Minot, N. Dak., General Telephone and Electronics Communications Inc., started new facilities for a system . . . **Point Pleasant, Mason, and New Haven, West Virginia** and **Pomeroy** and **Middleport, Ohio.** Jerrold Corp. constructing the first section of an 80-mile system.

Southern States

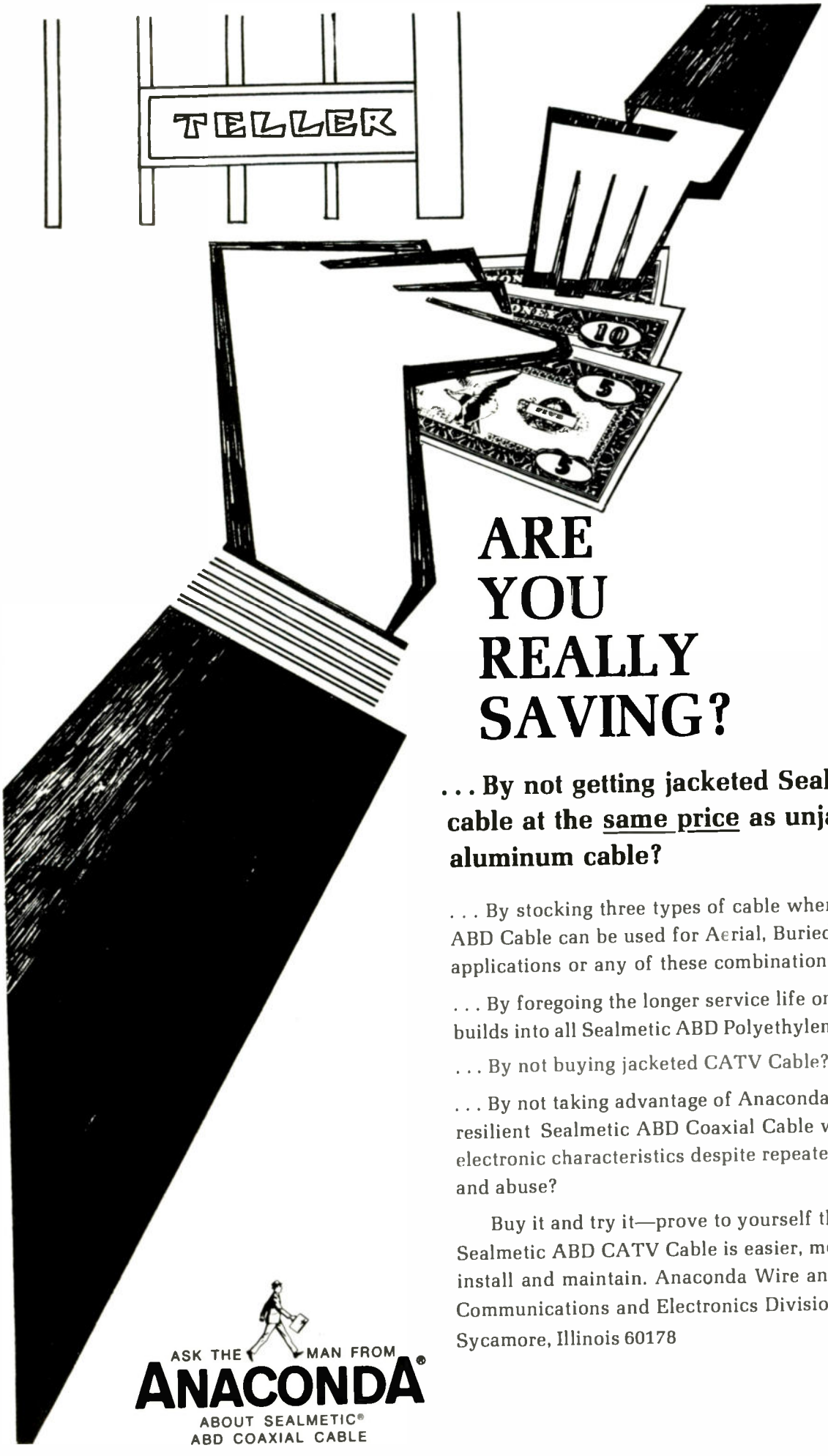
Pine Bluff, Ark., Pine Bluff Video, completed helicopter surveys for their system . . . **Deland, Fla.,** TM Communications, a subsidiary of The Times Mirror Company of Los Angeles, has broken ground for a system . . . **Naples, Fla.,** Gulf Coast Cablevision, has completed 100 miles, or half of the rebuilding of their entire system . . . **New Smyrna Beach, Fla.,** TV Communication Co., has run tests to determine the location for a television receiving tower.

Belzoni, Miss., TV Cables of Belzoni, has started construction . . . **Raleigh, N.C.,** Cablevision of Raleigh, has completed a new tower . . . **Anderson, S.C.,** Anderson Cable Television Co., survey to determine cable needed for system.

Gatesville, Texas, Gatesville Cable-Vision, completed its new brick home containing 1,800 square feet of floor space . . . **Graham, Texas,** Cablevision, new building to house amplifiers . . . **Del Rio, Texas,** Del Rio Cable Corp., wire stringing construction completed.

Western and Mountain States

Safford, Ariz., Robert F. Wolfe Co., has purchased five acres for construction of a cable tower . . . **Colusa, Calif.,** NorCal Cablevision, building new TV tower . . . **California City, Calif.,** Video, Inc., has started building a 250-foot antenna tower . . . **Lihue, Hawaii,** Derby Cablevision has started trenching procedures for underground cables. TVC



ARE YOU REALLY SAVING?

. . . By not getting jacketed Sealmetic ABD cable at the same price as unjacketed aluminum cable?

. . . By stocking three types of cable when Sealmetic ABD Cable can be used for Aerial, Buried and Duct applications or any of these combinations?

. . . By foregoing the longer service life only Anaconda builds into all Sealmetic ABD Polyethylene jacketed cables?

. . . By not buying jacketed CATV Cable?

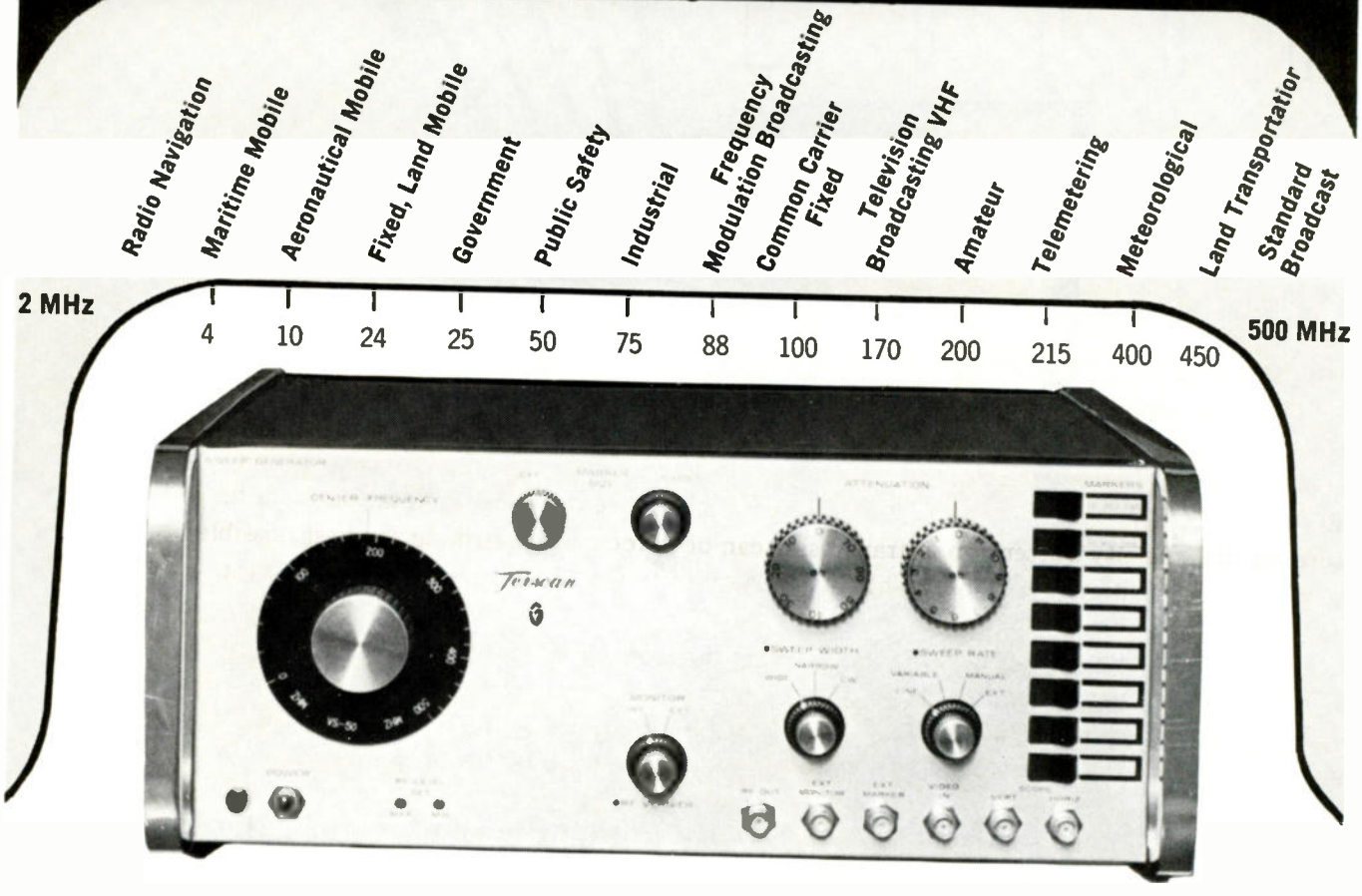
. . . By not taking advantage of Anaconda's super-flexible, resilient Sealmetic ABD Coaxial Cable which maintains electronic characteristics despite repeated bending and abuse?

Buy it and try it—prove to yourself that Sealmetic ABD CATV Cable is easier, more economical to install and maintain. Anaconda Wire and Cable Company, Communications and Electronics Division, Sycamore, Illinois 60178

ASK THE MAN FROM
ANACONDA®
ABOUT SEALMETIC® ABD COAXIAL CABLE

70357

are you covered?



from 2 MHz to 500 MHz in one sweep

Texscan Corporation introduces the new VS-50 solid state sweep generator. Designed as a laboratory and production instrument, the VS-50 provides multiple octave coverage, variable sweep rates, internal and external capability and complete control of RF output level.

Using the latest circuit design techniques such as a double sweep heterodyne oscillator-amplifier system makes the VS-50 versatile enough to sweep from 2 MHz to 500 MHz in one sweep.

The RF output is extremely flat and is specified for a flatness of ± .25 db at maximum sweep width with an output of 1 V rms into 50 ohms.

SPECIFICATIONS

Center Frequency Range	2 MHz to 500 MHz
Sweep Width	500 kHz to 500 MHz
Attenuation	0-6 db vernier 0-80 db in 1 db steps
Output Impedance	50 ohms or 75 ohms
Output Voltage	1 V rms

OTHER TEXSCAN VS-TYPE SWEEP GENERATORS

VS-20	VS-40	VS-80	VS-120
200 Hz — 25 MHz	1 — 300 MHz	1 — 1200 MHz	1 — 2.5 GHz

Contact your nearest Texscan Field Application Engineer . . . a specialist in electronic instrumentation

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Texscan Corporation 2446 North Shadeland Avenue, Indianapolis, Indiana 46219 • Tel. 317-357-8781 • TWX 810-341-3184

Late News

POVERTY AGENCY CALLS FOR FCC TO STOP LIMITING CATV

The Office of Economic Opportunity has told the FCC that it should establish "a Federal policy that permits and encourages the growth of cable systems at this time."

Commenting in the multi-phased Commission CATV rulemaking proceeding, the "war on poverty" agency called for a lifting of the FCC restrictions on distant signal importation, opposed franchise limitations of 2% as proposed by the FCC as irrelevant, and said that franchise competition often leads communities to disregard public service in favor of soaking high fees out of cable systems — fees that are then passed on to the public.

"OEO is opposed," the filing said, "to the almost universal tendency of municipalities to use cable TV franchises as revenue bills. These franchise fees are passed on to the consumer."

Competitive bidding can detract from the public interest, the agency said, commenting: "OEO believes that it would serve the public interest to remove the fiscal temptation from the picture, so that the city's attention in franchising can be refocused on striking the best possible bargain for its residents in terms of quality and variety of services to be made available by the cable company."

On the Public Dividend Plan, with its concomitant proposal to give 5% of a system's gross to public broadcasting, "OEO recommends that most restrictions on distant signal importation by cable systems, including those contemplated in this proceeding, be forthwith abandoned. It suggests that specific channel allocation not be undertaken but that, instead, cable systems be required to provide adequate channel capacity to meet all needs and demands, with uniform rates applying to all users including educational users, non-profit users, and municipalities. It believes that no levy should be imposed on cable systems to support public broadcasting." Such fees only drive up the cost to the poor, OEO argued.

COMMUNICATIONS PROPERTIES ACQUIRES CITIZENS FINANCIAL CABLE HOLDINGS

Richard P. Johnston, president of Cleveland-based Citizens Financial Corporation, and Jack R. Crosby, president, Communications Properties, Inc. (CPI) have jointly announced the successful completion of a merger of the CATV properties of the two companies.

The transaction, involving the exchange of approximately $14 million in stock, involved Citizens Financial merging its wholly-owned subsidiary, Tower Communications, Inc., into CPI. The merger has created a company which is now the 14th largest CATV operator.

Under terms of the merger agreement, Citizens Financial exchanged its ownership of Tower Communications for one million shares of common stock and 100,000 shares of $2 cumulative convertible preferred stock of CPI. The preferred stock is convertible at various future dates into another 600,000 shares of common. As a result of this transaction, Citizens Financial owns approximately 65 percent of CPI. CPI operating figures will be consolidated with Citizens Financial sales and earnings.

Crosby will be president and chief executive officer of the merged company, which will maintain its corporate headquarters in Austin, Texas.

FCC GETS CABLE COMMENTS FROM JUSTICE DEPARTMENT

The Justice Department has commended the FCC for its consideration of limiting CATV ownership by other information media, but it has termed its proposed cross-ownership limitations too severe to be justified by current industry situations.

Filing the ownership portion of the FCC's proposed CATV rulemaking proceeding, Justice anti-trust chief Richard McLaren said his department "would suggest a ban on cross-ownership between fulltime AM or AM-FM radio stations and CATV systems serving the same community when there are five or fewer radio stations (counting AM-FM combinations as a single station.)"

As far as banning newspaper ownership of CATV, Justice said that weekly publications should be frozen out in communities that don't have separately owned news outlets, but that no such ban is necessary in major markets with multiple media sources.

"The Department endorses the concept of multiple ownership rules," the Justice Department said, "but we believe that the Commission's proposals are too restrictive. Such rules serve the interest of promoting and maintaining technological competition and price competition in CATV equipment sales as well as providing alternatives for customers of such service.

The Department concludes that limits on the number of areas served is preferable to limits on the total numbers of subscribers since the former approach has less potential for discouraging full development of the service area of each system."

EXTENSION OF COMMENT DEADLINE BECOMES SUBJECT FOR HOT DEBATE

The FCC's package of CATV rules proposals became the center of a filing deadline dispute as the NCTA strongly disputed broadcaster claims that some deadlines should be delayed further. The Commission, meanwhile, bowed to a request by the Newspaper Publisher Assn. and put off the filing deadline for comments on the portion of the rules package dealing with newspaper-CATV cross-ownership.

The National Assn. of Broadcasters, ABC, the National Assn. of Educational Broadcasters, the Assn. of Maximum Service Telecasters and the All-Channel Television Society all asked the FCC for more time to file reply comments in the CATV proceeding. They noted that comments are due December 7 and reply comments January 8 and that with the holidays intervening it would be a backbreaking and unreasonable chore to do the necessary review and reply in such a short space of time. A proceeding of the magnitude of importance of the CATV proposals deserves more careful consideration, they said.

NCTA strongly disagreed. The Commission has already decried further delays in the proceeding, NCTA said, and the two extensions already granted are more than ample. The cable organization pointed out that the Commission earlier stated that it would not grant time extensions for filings.

The publishing group won a deadline delay for comments from December 7 to January 15. Reply comments are due February 12.

Introducing 79C: the only back-coated tape created from genuine Memorex 79P.

Our 79P has long been the most popular video tape for Ampex and other high-speed CCTV recorders.

It has one-third the dropouts of any other high-speed CCTV tape. It doesn't clog video heads. And it lasts a lot longer than other tapes. So it's only natural we choose 79P as the basis for our new back-coated 79C tape.

That means you can have all the performance advantages you're used to getting from 79P, plus the benefit of the finest back-coating yet devised. Our new back coating guards 79C against cinching, and it reduces debris-attracting static charge.

Since we sell both 79P and 79C, you now have a choice of two great Memorex tapes. Which one is best for you depends on how you use tape in your system. We would like to give you all the facts.

Either contact your Memorex distributor for a demonstration on your own video recorder, or write for our free 79C brochure.

Memorex Corporation, Video Products, Memorex Park, Santa Clara, California 95050.

MEMOREX

News SPECTRUM

Rand Corp. Scientists Recommend That the FCC Modify Cable Policies

Two scientists of The Rand Corporation said recently that the FCC "should drastically modify its regulatory policies on cable television."

They based their recommendations on analyses of broadcast industry statistics undertaken in studies funded by The Ford Foundation and the John and Mary R. Markle Foundation.

Dr. Leland L. Johnson, head of Rand's communications policy research program, and his colleague, Dr. Rolla Edward Park, filed reports of their findings and recommendations with the FCC.

"The FCC has sought to restrict cable television growth in the major (urban) market areas on the premise that bringing more signals into communities where several already exist would so fragment the audience that local stations, particularly non-network UHF, would be threatened," Dr. Johnson said.

Actually, the Rand scientists say, their findings show that non-network UHF stations in the major markets would be helped rather than hurt by the growth of cable television, while other stations in those markets would be hurt very little.

On the other hand, stations operating in areas away from major population centers now served by only one or two stations could be seriously hurt if cable flooded their markets with additional distant stations. Yet the FCC has imposed little restraint on cable growth in these areas.

Projecting the growth of cable through 1980, Dr. Park said that broadcasting's revenues industry-wide would be about nine percent lower with the full impact of cable than if there had been no cable — "a loss that would be wiped out by one year's typical revenue growth."

"The introduction by cable of distant signals into big-city markets would fragment UHF station audiences, but this would be more than overcome by the advantage of the UHF stations of being picked up on the same cable. This would enable the viewer to tune in the UHF stations on the same dial and with the same clarity that he receives VHF stations."

But if the FCC feels some protection is necessary, "there is a better way of providing it than the 'commercial substitution' plan," Dr. Johnson said.

He advocated "a direct compensation plan whereby cable operators pay broadcasting stations for their actual monetary losses caused by cable operations in both the large and small markets."

In his projection through the 1970s, based only on local audience gains or losses, Dr. Park foresaw that non-network UHF stations might ultimately achieve a 20 percent increase in revenues as a consequence of having their signal picked up on cable.

Currently more than four million homes, about eight percent of the total, have subscribed to cable. Dr. Park projects that eventually as many as 45 percent of all homes will subscribe.

Dr. Johnson said that in the light of his and Dr. Park's studies, he believes cable television "should be permitted to grow in the large markets without special or formal protection to local broadcasters."

Dr. Johnson, a senior economist at Rand, is the author of another Ford Foundation financed study, "The Future of Cable Television: Some Problems of Federal Regulation," published last January. In 1968, he served as research director of the President's Task Force on Communications Policy.

Commission Delays CATV Rule Interpretations

Acknowledging that cable television regulation poses "a terribly critical problem," FCC Chairman Dean Burch said that the Commission has delayed consideration of its CATV rules proposals until its seventh member is confirmed by the Senate.

Burch, speaking at his third press conference since assuming command of the agency a year ago, also noted that "there is no possibility of copyright legislation in this session of Congress." Asked what the Commission would do

We have only one standard. The finest. And that's how it's going to be at our new cable plant.

Coming soon:

Phoenician COAXIAL CABLE

We knew it was the one way to be certain that the cable in a system matched the meticulous engineering, manufacturing and performance standards of our Phoenician and Phoenician XR Series electronic equipment.

Our million-dollar, 60,000 square-foot plant nearing completion in Phoenix will be the most modern facility of its kind in the world. Both coax and house drop cables will be manufactured And they'll be available soon. Watch for the announcement.

KAISER CATV

Division of Kaiser Aerospace & Electronics Corporation
P.O. Box 9728, Phoenix, Arizona 85020, Phone (602) 944-4411

about CATV regulation in the absence of copyright revision, which the FCC earlier said was necessary to its CATV Public Dividend Plan, Burch said "there are a number of fall-back positions that could be exposed by various people." But, he added, "We have not within the Commission itself had any fall-back position circulated."

Sherman Unger's nomination to the FCC has been delayed while the Internal Revenue Service conducts a check on his returns for 1968, though speculation in Washington is widespread that the nomination will be withdrawn, and a new appointment will be made. Burch said that he had been consulted by the White House on the Unger appointment, but that he has no idea of the current status of the FCC vacancy.

"However long it takes this person to become familiar with CATV will depend, I suppose," Burch said, "either on his friends or his enemies." The Chairman noted that regardless of the way the seventh Commissioner votes, he will offend someone.

Burch declined to predict the exact effect CATV might have on political broadcasting, but noted the consensus thinking that cable will afford much-needed outlets for political communications.

It was pointed out that the FCC has indefinitely postponed its proposed public hearing on CATV rules, originally set for mid-December — ample time for the Senate to confirm an FCC appointee. Nevertheless, Burch said, he doesn't expect a new Commission member to be on board and primed for such a crucial issue by then.

CBS Filings Call For Continued Cable Freeze

Columbia Broadcasting System has apparently decided which side of the cable/broadcasting fence it will stand on. Once the owner of the largest cable television operation in North America, CBS has thrown down the gauntlet in behalf of broadcasting.

Filing comments at the FCC with regard to proposed CATV rulings, CBS called for the adoption and application of the FCC's 1968 CATV proposals. In effect, CBS wants the CATV freeze to continue until Congress provides "the comprehensive solution which is required." The broadcasting giant further stated "The continued prosperity and growth of the cable television industry does not require that it be accorded a protected status in a competition-free sanctuary."

"The fact of the matter," the CBS statement noted, "is that the cable television industry has never been interested in entering the competitive television programming market and never will be so long as it hears the siren song of free, or almost free, use of the distant signal programming created and paid for by others."

The CBS cable unit has begun replacing top staff members of CATV subsidiary TeleVue Systems. Reportedly, CBS is ousting TeleVue's key men in favor of radio executives from the company's broadcast division.

Included among those said to be out are TeleVue President Homer Bergren, Senior Vice President Charles Clements, and several top level operations and technical people. One TeleVue executive quipped that the CBS spin-off "will be the first cable company to be run entirely by radio men!"

Governor John A. Love of Colorado (right) officiates at groundbreaking ceremonies signaling construction of a new General Cable Corporation manufacturing facility on a 25-acre site north of Denver in suburban Westminster. Assisting the governor is Robert J. Young, Jr., assistant general manager of the MOPECO division of General Cable, and pretty Sue Ann Gehrman, Miss Colorado. The 14,000-square-foot plant will also be used for storage of cable products.

TPT Purchases Reeves Entire CATV Holdings

TelePrompTer Corp. and Reeves Telecom Corp. have announced they have reached an agreement in principle for TelePrompTer to purchase seven cable television systems from Reeves for a total of $17 million dollars.

The seven systems represent over 50,000 subscribers with a potential of 100,000 subscribers. Through the purchase TPT bought all of Reeves CATV systems holdings.

The agreement provides for TelePrompTer to pay $4.5 million dollars in cash and $10.8 million in twelve-year notes and to assume $1.7 million of Reeves' indebtedness.

TelePrompTer would have rights of prepayment, which would enable it to reduce the amount of its notes by as much as $1 million.

The CATV systems are located

in Gadsden and Huntsville, Alabama, Oswego, New York, Portsmouth, Ohio, Vineland, New Jersey, Richlands, Virginia and Seattle, Washington.

In a separate deal having nothing to do with Reeves, TelePrompTer announced the signing of an agreement to purchase a 4500-subscriber system in Lakeland, Fla. from Media General, Inc.

The terms of this agreement call for TPT to pay $1 million in cash, issue 5,000 shares of common stock and assume approximately $900,000 of debt. Additional shares of stock would be issued if the selling price of TPT shares would not equal or exceed $100 at the end of two years after the closing of the transaction.

TelePrompTer and Wrather Corp. also announced that TPT would issue initially 250,000 shares of its common stock under terms of an agreement in principle for TPT to acquire the stock of Muzak, Inc. from Wrather Corp.

Canadian Association Elects Short as President

The Canadian Cable Television Association (CCTA) will have its first full-time president starting January 1, 1971.

Robert C. Short, a successful leader in the fields of business and education will establish his CCTA office in Ottawa. Short is the founding president of St. Lawrence College.

W.E. Jarmain, CCTA board chairman, made the announcement in Montreal saying, "Our industry requires the full time attention of a man with Mr. Short's stature and impressive leadership qualifications."

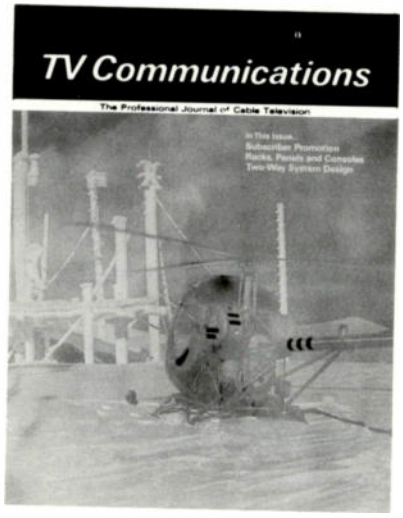
Accepting the first presidency of the CCTA, Short now undertakes the guidance of the 14-year old association which has, in the past, been run solely by the elected board and an elected chairman. The member companies represent 90 percent of Canada's 1,100,000 cable TV subscribers.

Short takes an organized, positive approach to his position.

"Industry generally spends far too much time dealing with problems — probably 80 percent of the time, and too little consideration is given to the opportunities."

His college position has been his greatest challenge to date. He developed the curriculum, hired the staff, found the space and gave three or four talks daily.

"Now I'm impressed with a similar challenge in the cable television industry," he said. "The 21st century is only 30 years away and cable television has an important role to play. The opportunities for its development in the Canadian economy far exceed the difficulties the industry now faces."



This Month's Cover...

The snows came . . . and came . . . and came! This microwave relay station atop Capitol Peak (about 5 miles outside of Olympia Washington) received about 12 feet of snow two winters back. Barely showing is the top two feet of the building adjacent to the towers. System Engineer Jerry Raines took this photo just after he and other service personnel were brought in by helicopter to restore power. The microwave station brings nine channels from Seattle and Portland to the 10,370 subscribers in Aberdeen, Hoquiam and Cosmopolis, Washington. TVC

Magnavox Enters CATV With Craftsman Merger

A merger between Craftsman Electronics Products, Inc., and Magnavox Corp. was announced at the California Cable Television Association convention in Coronado, California.

The agreement in principal of the two firms calls for the designation of Craftsman as a division of Magnavox. The anticipated effective date of the merger is December 1. The merger is effective through a stock transfer.

Dan Mezzalingua will remain as president of Craftsman.

The acquisition of Craftsman represents the first in a series of moves planned by Magnavox by which the firm intends to put together the building blocks for a total CATV turnkey service. Magnavox expects to be a major

BUILDINGS

Fort Worth Tower Company MOBILT Buildings are your answer to efficient, economical head-end electronics protection. Designed expressly to house CATV and microwave electronic equipment, MOBILTS withstand any climate or location problem. . .house electronic equipment according to the most rigid standards. MOBILTS are available in popular sizes or custom-built to your design . .yet they are surprisingly inexpensive.

■ INSTALLED IN MINUTES

Your MOBILT can be ready to work for you in minutes. You have no rigup delays on arrival because your building comes with supporting I-beams. Simply drop on your site, connect the service inlet, and you're in business.

■ REDUCED COST AND WAITING TIME

MOBILTS save you time and money because complete wiring is installed at the factory. Unlike conventional buildings, equipment can be delivered with it rather than installed on locations.

■ QUALITY CONSTRUCTION

MOBILTS are designed expressly to house electronic equipment. Result? Problems like inadequate tightness, poor ventilation and improper sealing of doors are non-existent. And. . .an absolute minimum of maintenance is required.

■ FAST DELIVERY

MOBILTS offer fast delivery and uniformity. We promise delivery on time. Many options are available in size, outside finish, wiring and ventilation. You owe it to yourself to write for full specifications on these rugged, versatile head-end buildings. You'll find one exactly suited to your needs. . .at an economical price.

Fort Worth Tower Co., Inc.

P.O. BOX 8597 / 5201 BRIDGE STREET / FORT WORTH, TEXAS 76112
FORT WORTH PH. (817) JE 6-5676 • DALLAS PH. (214) AN 4-2822

force in CATV manufacturing in a relatively short time.

Mezzalingua anticipates this total turnkey capability will be in the form of individual divisions, each contributing components to a total package which will be marketed through a consolidated sales arm at a later date.

NCTA Names Committee To Study Procedures

The concern some NCTA members have over the way their officers are pre-screened before being elected, prompted the NCTA board of directors to set up a new committee to evaluate different ways in which an "official" slate of candidates might be chosen.

At the same time, the board approved the Nominating Committee headed by William Adler. It set up the Special Election Procedures Committee, which will be chaired by Robert Beisswenger, last year's chairman of the Nominating Committee.

NCTA noted that a number of members — including those who served on the Nominating Committee in the past — have worried about too much responsibility being put on the shoulders of those who select the candidates. "Maverick" candidates highlight the problem, of course, and just this year at the NCTA convention in Chicago Edward M. Allen won the secretary's post over official nominee W. Randolph Tucker.

Appointed by NCTA national chairman Ralph Demgen to serve with Beisswenger on the Special Election Procedures Committee were Robert H. Simons, Gordon Fuqua, George Barco, and Amos B. (Bud) Hostetter.

In a letter to the membership recently, Demgen stressed that no change necessarily will be made and that any alterations in the current procedures will first have to be approved by the Bylaws Committee, chaired this year by Yolanda Barco, and then the full NCTA membership at the annual convention in Washington next July 6-8.

One possible revision, Demgen's letter suggested, was that the membership elect the board, which in turn would then elect the national officers.

The Committee was charged with reporting back any recommended changes to the next board meeting, which will be held in January or February. The board will have to approve the findings before passing them along to the Bylaws Committee.

Serving with Adler on the Nominating Committee are Eugene Iacopi, George Barco, Frank Thompson and Duff Kliewer.

California Cable Show Passes Previous Figures

Approximately 1,500 cablemen from around the country showed up at the Del Coronado Hotel in Coronado, California for the annual convention and trade show of the Calif. Cable Television Assn.

Walter Kaitz, general counsel and secretary for the association, said he sensed a renewed confidence in CATV by manufacturers. Optimism was spawned by a total attendance which surpassed last year's figures by 400 members.

Speaking at the opening day luncheon, J. Leonard Reinsch, Chairman of the Board and President of Cox Cable Communications, Inc., heralded the CCTA Convention as the "most important gathering in the industry."

Reinsch spoke of the advantages and drawbacks of local origination, saying, "Systems must become viable businesses before they can do local origination, but cable TV can also be a great new world through the innovation of local origination."

During a panel discussion on "The FCC, The Regulatory Environment in the Public Interest," the Commission was slapped around by CATV lawyers for placing harsh technical standards on the industry.

FCC attorney Robert Cahill spoke on behalf of the FCC saying, "Today the FCC is trying to get your industry into the top 100 markets, and they're not looking at CATV in a negative way."

Cahill referred to plans of FCC Chairman Dean Burch to conduct all proceedings on a full-scale basis, so that everyone concerned with CATV will get an equal opportunity to express their views.

From left to right, Jim Lawrence, TM Communications' DeLand system manager, Cliff Gardiner, president of Cablevision Construction Corp., and Ray Wittlief, TM's chief engineer, discuss construction of TM Communications' new cable system to serve DeLand and West Volusia, County, Florida.

the vigilante

Please forward detailed information on:

Cascade Status Monitor ☐ 2 way system equipment ☐

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The Cascade Status Monitor sweeps continuously through the monitored UNICOM stations and sets up both audible and visible alarms should any station deviate beyond prescribed limits. This means you can now isolate a malfunctioning station before your customers complain without the trouble and expense of keeping a crew in the field constantly checking each amplifier station. You also eliminate one of the biggest problems of a CATV system — the urge of Technicians to "tweak" an amplifier in the hope of improving response. You now direct the technician directly to any malfunctioning station only after the station has deviated beyond what you consider to be acceptable levels.

One Cascade Status Monitor will keep watch over 64 stations, and a second unit could be added if required.
Operation — The numbered button glows when that station is being monitored, the large faced meter indicates the response change in respect to a mean setting. You can elect to have the Monitor lock on to the malfunctioning station or sweep through. In either case, audible and visible alarms are set up when the malfunction exceeds your predetermined limits. To observe any station in the system just depress the corresponding button. Depressing the "Channel Unlock" button starts the Monitor into its automatic sweep. As your system grows, just keep plugging more modules into the Monitor to a maximum of 64 stations. Mounts in a standard rack.

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monitor the levels of your system with the ever vigilant

CASCADE STATUS MONITOR

Maintain an automatic constant check on the output level of your trunk stations from any convenient point on the trunk line.

See the amount of deviation of each trunk station.

Observe the response change of any or all of your trunk stations from some remote location on the trunk line — head end, studio, office, home, etc.

Mr. Weber

J. Fred Weber, 57, Marketing Director for FCB Cablevision in Newport Beach, California, died of a heart attack at the opening session of the CCTA Convention.

The cable executive slumped in his chair just after addressing the opening session of 275 persons, when the heart attack occurred, said Deputy Coroner S.J. Thomas.

Weber was a pioneer of marketing principles for the CATV industry.

Prior to his position with FCB Cablevision, and an absence from the CATV industry, Weber held marketing responsibilities with American Cable Television, Jack Kent Cable and Telesystems.

Behringer Leaves Kaiser Now with Theta Com

R.W. Behringer, manager of Kaiser CATV in Phoenix, Arizona since 1967, has resigned to accept a management position with Theta Com.

Through Behringer's influence, Kaiser has jumped into full-fledged involvement and participation in cable television. His new appointment became effective in late November.

C.K. Perkins, vice president of the electronics division of Kaiser Aerospace & Electronics Corp. is assuming the general management of all CATV activities of the corporation.

Compromise Allows Use Of New York Signals

The FCC has recently approved a compromise agreement between a cable system and area television stations that will allow the CATV outlet to carry New York signals on its Philadelphia-area hookups but forbid it to extend the carriage to new subscribers.

The compromise was worked out by General CATV, Inc. in Burlington County, N.J., and Westinghouse Broadcasting Co., U.S. Communications Corp. and Taft Television Corp., owners of two UHF and one VHF television stations.

General agreed to stop constructing any additional trunk lines or feeder cable in any part of Burlington County on which New York television signals would be carried, though it will continue to carry New York signals over existing feeder cable. The agreement will be binding unless the FCC changes its rules to permit importation of signals. TVC

Calendar

December 6-7-8. The Center For Communications Seminar on CATV: Programming and Advertising, Los Angeles, Calif. For further information contact Tom Keith, 6290 Sunset Boulevard, Suite 1700, Hollywood, Calif.

December 7-8-9. NCTA-Ampex Seminar, CC-1, capsule course and teleproduction workshop. Chicago, Ill., Chicago O'Hareport Inn.

December 8-9. Ampex Seminar, CC-1 capsule course and teleproductions workshop, Tulsa, Okla. TVC

NEXT MONTH IN *TV Communications*

Modern System Management is the theme for January. Articles focus on computerized subscriber management . . . profit-producing CATV management techniques . . . modern system design criteria . . . programming and sales for local origination . . . and much more! TVC

FOCUS
...On People

Systems

R. Wayne Wilson has joined American Television & Communications Corp., as director of advertising and public relations. Wilson will be responsible for developing advertising and public relations programs on the corporate level as well as assisting in the development of individual systems. William R. Kimball, Jr. has been elected to the board of directors of Cox Cable Communications, Inc.

J. Everett Kochheiser has been appointed general manager of Kern Cable Co. by Burt I. Harris, president of Cypress Communications Corp. Kochheiser formerly was the general manager of Bakersfield Cable TV, a subsidiary of Cox Cable, prior to joining Kern Cable.

Former general manager of Cosmos Cablevision Corp., K. James Yager was elected vice president of administration. Bendix International Corp. has announced that Peter D. Warburton has been appointed managing director of Bendix-TVC International, a joint venture of Bendix International and TVC based in Manchester, England.

The board of directors of Mclean Hunter Ltd. has announced the appointment of Donald G. Campbell as president and chief executive. Campbell was executive vice president, finance and broadcasting. Henry D. Pearson Jr. has been named

Mr. Warburton

Mr. Wilson

assistant to the general manager of TelePrompTer Cable TV in New York City.

Henry R. Goldstein, vice president and general manager of TransVideo Corp., San Diego, Calif., a division of Cox Cable Communications, Inc. has announced the following promotions: Gary A. Hokenson, formerly manager of the company's system in Bakersfield, Calif., has returned as systems operations manager for all TransVideo operated systems; Howard Channel, formerly manager of a San Diego office, has moved to Bakersfield to manage that system and the system in Porterville, Calif.

TeleMation, Inc., (TM) has officially named Richard R. Peterson as vice president, marketing, based at the company's Salt Lake City headquarters. Peterson was formerly district manager of TeleMation California, Inc. He will be responsible for planning and directing TM corporate marketing efforts, coordinating the departmental activities of sales, advertising, market and product development, customer training, and shows and exhibits.

Suppliers

Ira Kamen, has been named president and chief executive officer for Laser Link Corp. Also elected at Laser Link was William E. Clancy, former president of First Illinois Cable TV, Inc., as vice president of sales. Until recently Clancy was vice president of marketing at JFD Electronics.

MARKIT Communications has announced the appointment of Benjamin B. Kittay as vice president-operations. During the seven months that Kittay has been with MARKIT, he has established areas of subscriber development and retention for the cable television industry. Prior to joining

"We brought CATV to Casper, Wyoming

...Collins helped make the picture profitable."

Gene Schneider, president of United Video, Inc. and LVO Cable, Inc., Tulsa, Oklahoma, comments on the selection of microwave equipment for his company's CATV operation in Casper, Wyoming.

"Casper depends on a community antenna operation for its television viewing. Look at its location on a map and you'll see why.

"We wanted to bring the best possible CATV reception to Wyoming. We chose Collins equipment for its high reliability and its low cost of ownership.

"Collins equipment helps keep our subscribers happy with a quality color picture; and it keeps us happy because it's economical."

Throughout the nation, Collins CATV microwave radio relay equipment is on the job . . . for Mr. Schneider's microwave firms and other CATV operations.

This microwave equipment is another example of the engineering and manufacturing excellence achieved at Collins through use of the C-System, a computer-controlled system which integrates design and production —as well as other management control functions—into a single network.

For complete details on how to keep the profit in your CATV picture, write Collins Radio Company, Dept. 400, Dallas, Texas 75207. Phone: (214) 235-9511.

COLLINS

COMMUNICATION / COMPUTATION / CONTROL

MARKIT, Kittay was in marketing management positions with Tishman Management Corp.

Robert W. Baker has been appointed as Houston regional sales manager for Anixter-Texas. John Hassenflu, president of the Dallas-based firm, made the announcement. Anixter-Texas is a member of the Anixter nationwide network of electrical cable distribution warehouses. Baker comes to Anixter-Texas from Briggs Weaver, Inc., Dallas, where he served as manager-engineered systems.

John Messerschmitt, president of Amperex Electronic Corp. has announced that Allan L. Merken has been appointed corporate vice president in charge of marketing and sales for the entire Amperex Corporation. Prior to his appointment, Merken had been vice president and general manager of Amperex component and entertainment tube divisions, in Hauppauge, Long Island.

International Video Corp., Sunnyvale, Calif., has announced three new manufacturing promotions. William F. Boucher has been named manager, manufacturing; Wayne J. Lee, manager, quality control; and George T. Sowlakis, manager, manufacturing engineering. Boucher was formerly manager of quality control, while Lee first joined IVC as supervisor of the product test department. Sowlakis was senior project engineer with Mark Systems.

Mr. Steele

Miss White

Mary K. White has been named field sales manager — cable television products for Systems Wire and Cable Inc. Miss White previously was supervisor, cable television sales. She entered the cable television industry in 1965, and has worked for Ameco and SKL in Phoenix. When Systems Wire and Cable was formed in 1969, she was one of its first employees.

Ameco, Inc., has named Gay C. Kleykamp, vice president and director and Michael A. Hausman as national sales manager. Anaconda Electronics, a division of Anaconda Wire and Cable Co., has announced the appointment of Don Steele as manager, advertising and promotion. Steele joins Anaconda Electronics from *TV Communications* Magazine in Denver where he was in charge of advertising sales.

Donald R. Carpenter, general manager of the Essex International CATV Division, has announced the appointment of Roy Walters to the newly-created position of manager, customer service and planning.

General Cable Corp. has announced two appointments: Clifton P. Grant as vice president

for technology and George P. Tateosian as director of metals management. Anixter Bros., Inc., has appointed J. Eugene Watson as vice president of their new power systems group.

Mr. Stice

Mr. Hilliard

Robert C. (Bob) Hilliard has joined National Telesystems Corporation as vice president of management services, a newly-formed division of NTC. The new division is set up to offer professional technical and management consultant services to cable system operators. Hilliard is a graduate electrical engineer. He was a pioneer in aerospace quality-control systems and a former partner in Coaxial Systems Engineering Company, a southern California cable system. Also recently added to the NTC staff was Robert P. Stice. He is heading up NTC's subscriber marketing activities.

Continental Systems Supply, a subsidiary of Superior Continental Corp., has announced three appointments: H.C. Allen, director of marketing services; J. Edward Brown, director of purchasing and contract administration and C. Lewis DeMasters as manager-physical distribution.

Herman Schkolnick has been appointed product manager of video systems at Philips Broadcast Equipment Corp.

Professional

TeleVision Communications Corp. (TVC) has named Aaron I. Fleischman as vice president, general attorney. Fleischman will serve as house counsel for TVC, performing a complete range of legal duties for the company's CATV systems and related communications operations.

Mr. Gretser

Mr. O'Connor

Communications Publishing Corp. has announced that Roger O'Connor has been appointed managing editor of *Communications*, the firm's publication that serves business communications. O'Connor received his B.A. in English from Baker University and his masters from Kansas State College. George Gretser, sales manager for National Cable Television Institute is now also editor of the school's new publication, *Cable Tech*.

"Operation Orange Juice" Builds Subscribers for Jerrold

This nationwide promotion for Jerrold systems last year netted 5,980 new customers and 1,082 second set connections. Principles involved can be applied to build effective promotions for your system.

The name sounded more like an airlift rescue than a national cable TV promotion. Perhaps in reflection it would have been more appropriate to call it "Operation Madness."

In addition to local special event promotions that are run in individual systems, three or four yearly major national promotions are run simultaneously for all Jerrold systems. One of the largest of these promotions is presented annually at the September Jerrold Manager's Seminar so the 22 Jerrold systems can have a well coordinated promotion for increasing cable subscriptions. Last year the major promotion was "Operation Orange Juice."

New Year's in Miami, the theme of the promotion, (therefore "Operation Orange Juice") included free, all expense paid trips for two from each Jerrold managed system, to Miami. The highlight of the trip was choice seats at the Orange Bowl classic, New Year's Day.

Working with Dave Brody, Manager of Jerrold's Systems Operations Division, we planned the promotion with a three part offer:

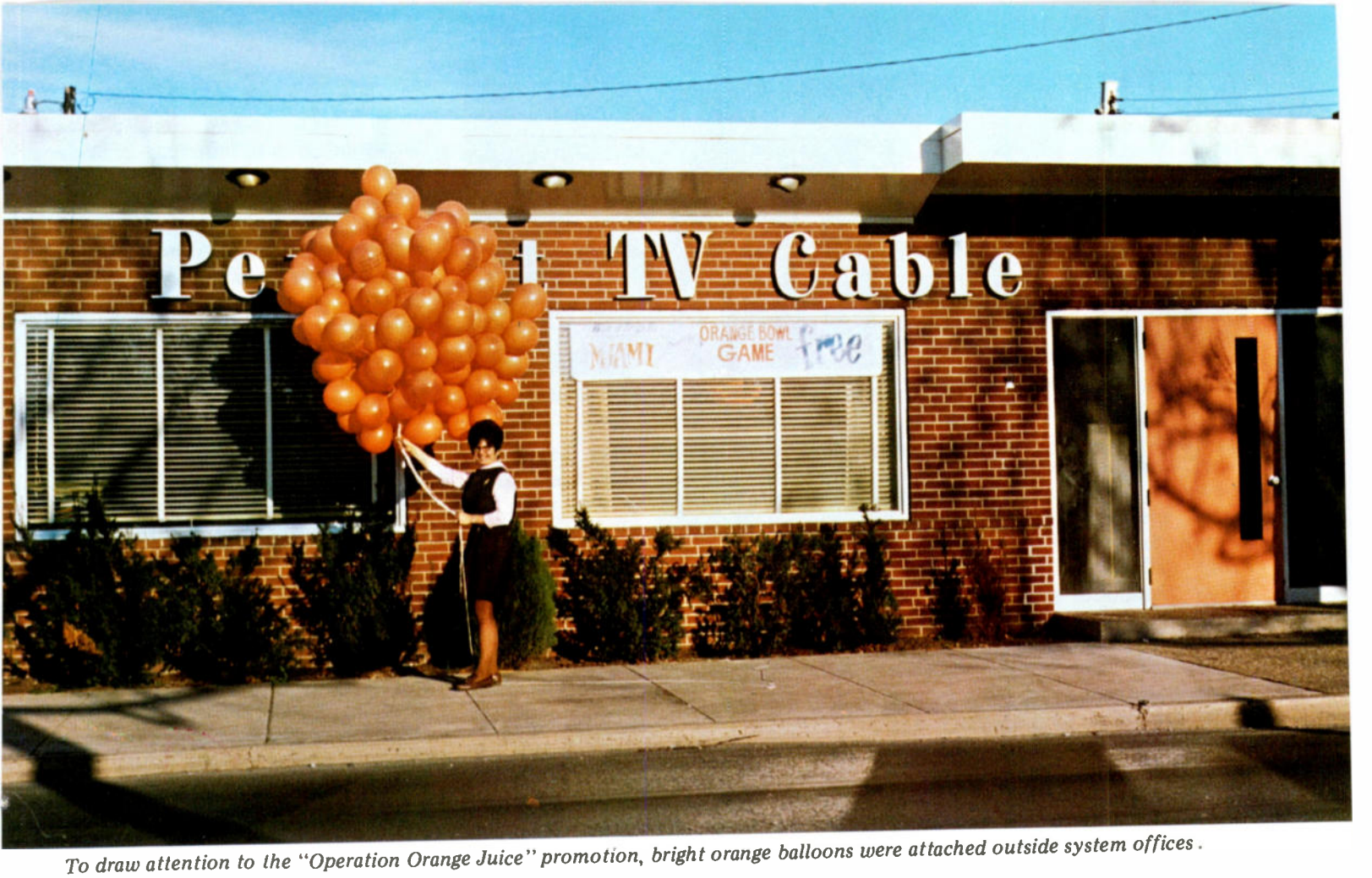
(1) The installation charge was reduced. (In systems with no installation charge the very fact of free installation is played up in promotions).
(2) For each and every new legitimate reconnect or second set subscriber, a free transistor radio was given as a sign up incentive.
(3) Everyone was eligible to enter the *New Year's in Miami* contest including the new, present or non-subscribers.

The contest had numerous advantages. By playing up to both the husband and wife, more excitement for the promotion was created. Basically, we appealed to the men with the Orange Bowl football classic. The New Year's Eve celebration and the "days in the sun" were geared to appeal mainly to the wives.

The open contest, while a general necessity in most states (so as not to constitute a lottery), was advantageous to us. It is important to keep the cable company image and name in the public eye, and even in the most saturated system it is advisable to occasionally give your present subscribers the opportunity to participate in a

ABOUT THE AUTHOR

Stanley H. Ogen is the Manager of Advertising and Promotion for the Systems Operations Division of Jerrold Electronics, a subsidiary of General Instrument Corporation. During the past three years Jerrold systems have won forty national advertising and promotional awards under Ogen's leadership.



To draw attention to the "Operation Orange Juice" promotion, bright orange balloons were attached outside system offices.

promotion. To give each present subscriber a free gift just for good will or public relations obviously would be economically absurd. However, with a promotion such as "Operation Orange Juice" they did have the opportunity to participate.

If we hadn't even gained one new subscriber, the publicity and public relations gleaned from "Operation Orange Juice" alone would have almost been worth the cost of the campaign. However, this was not to be the case. We "stuck our necks out" and budgeted the campaign for slighly over 5,000 new connections.

The final campaign results were even more spectacular than we had hoped. Just short of 6,000 (5,980) new subscribers were realized as the end result of "Operation Orange Juice." A "bonus" of the campaign was the addition of 1,082 "second set" connections.

Complete media plans and the campaign schedule were supplied to each manager. Basic radio commercials were written for the promotion. These, incidentally, were not taped but given out as scripts for the local station to follow. The reason for this is simple. To preserve the local feeling of the cable company contest, a single announcer is not best. Therefore, the simplest method is to use a script that can be changed easily to let the local "accents" and style come through.

Glossies for a basic newspaper campaign were also prepared. In all cases the promotion broke with a series of teaser ads one or two days prior to "main" opening ads and radio commercials. On the day the large opening ads appeared, the teasers were also rescattered throughout the paper.

The first "break" ad was geared to feature the New Year's package and the Orange Bowl game, followed by secondary headlines on a double bonus . . . the installation reduction, and the free transistor radio. Subsequent follow-up ads, as well as commercials, dwelt on various highlights of the campaign . . . a sports-type ad with emphasis on going to the Orange Bowl game . . . A fashion-type ad featuring the excitement of New Year's Eve in Miami Beach . . . a "hard sell" series of ads featuring the free radios with the Orange Bowl weekend as a secondary follow up.

The approximately 45-day campaign varied in all phases so as not to become static or boring. For a change of pace, as the promotion continued, we played down the "Orange Bowl" trip and featured the free radios. Newspaper ads and radio commercials were revised slightly with new formats . . . same theme . . . new emphasis. As the campaign drew to a close, in most areas we returned to our original format for a "last days" push.

Company vehicles were put to use as "mini-billboards." Weather scans, message centers and cablecast programs highlighted the promotion.

The office clerks and secretaries were bought into the spirit of the campaign by a national window contest. Almost "overnight," Jerrold cable systems across the country buzzed with friendly competition.

New and fresh visual

Contest winners celebrate together at Miami cocktail party and at football classic.

approaches on "Operation Orange Juice" appeared. Attention-getting twelve foot large weather balloons were sprayed with "day-glo" orange paint and floated above cable offices like giant oranges. "Bare" branches were attached in front of and around the cable offices and festooned with plastic "oranges." The same plastic oranges appeared on top of car radio antennas of company and employee vehicles. Downtown and at local shopping centers, smartly attired girls wearing small scale "sandwich boards" gave away suitably imprinted orange balloons to children. CATV customers were given free oranges from counter baskets.

The promotion was far from over as the promotions drew to a close and winners were selected. Additional publicity was realized from the drawing of the winners. The drawings were handled in many different ways; however, all of the contest drawings had one important thing in common. The time of the drawings were previously announced and open to the public.

The most novel of the drawings was held in Ormond Beach, Florida during their annual large antique car rally. Perhaps the most appropriate drawing was held in Clifton Forge, Virginia, where the drawing was held at half-time in front of several thousand people during the biggest high school football game of the season. In all cases we had respected public figures pull the winners.

Whether or not the winner was a cable subscriber was not taken into consideration. All contestants had an equal chance to win. Cable-casting facilities were brought into play where available and the drawings were shown over our local cable channels. Every available means of publicity was used to best advantage.

Contests were over, free radios had been given away, winning drawings were held . . . the only thing that remained was to make sure the winners did indeed have the "most exciting New Year's Holiday ever."

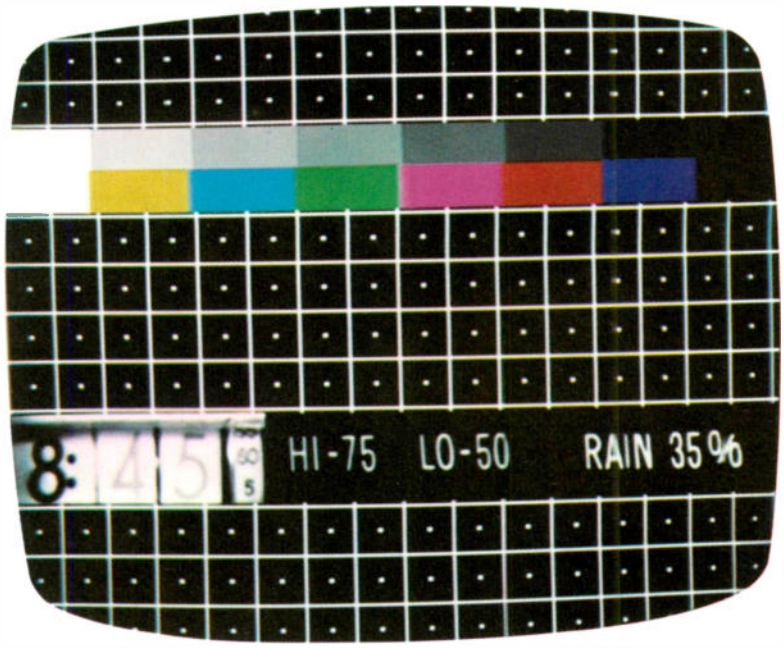
Over fifty winners would descend on Miami, during one of their busiest seasons, the day before New Year's. It was our responsibility to ensure that our cable company image came through with flying colors. Occasionally people are skeptical about winning something "free." In some of the smaller systems our reputation could easily be tarnished if we failed to provide every "glowing promise" of this "dream trip."

Working with a Philadelphia travel agency, we secured air reservations from each system months in advance. Hard-to-get Orange Bowl game tickets were secured, and hotel accommodations were arranged. A step by step itinerary was prepared.

Upon checking into their hotel, each couple received a "VIP" touch. Fresh fruit baskets awaited them in their rooms. Wednesday evening, New Year's Eve, they had reserved seats at the famed Orange Bowl Parade. After the parade the winners returned to their hotel for a lavish and traditional Miami Beach New Year's party.

The many winners were anxious to meet other contestants from other parts of the country . . . this too was arranged. No detail was left to chance, a Jerrold headquarters coordinator was on hand to handle any problems of the winners. A chartered bus was secured to take the winners to the Orange Bowl game on New Year's Day. Choice seats for the exciting

New... TV Signal Generator Designed for CATV



A master sync generator for local program origination

The TEKTRONIX 144 NTSC TEST SIGNAL GENERATOR is a source of high-quality television test signals for cable and broadcast TV systems. It provided the test signals for the composite test pattern pictured above. This unique pattern is of special interest to CATV operators. It contains up to five different signals in each field: CONVERGENCE (crosshatch lines and/or dots), COLOR BARS, GRAY SCALE (color bar luminance levels only) for checking gray-scale color balance and luminance/chrominance registration, and two EXTERNAL VIDEO inputs with manual horizontal wipe. By connecting TV cameras to either or both external video inputs, local programming such as time and weather may be inserted in the convergence pattern. The signals are displayed according to an internally preset pattern. Each signal location and duration is easily programmed by the user with insulated plug-in jumpers.

COLOR BARS or MODULATED STAIRCASE are also available as full-field and/or VERTICAL INTERVAL TEST SIGNALS.

The 144 is not just a signal generator. It is also a complete EIA SYNC GENERATOR with a temperature-controlled color standard providing excellent frequency stability. Digital integrated circuits are extensively used to achieve stability, accuracy, and reliability. Outputs are subcarrier frequency, composite sync and blanking, vertical and horizontal drive, burst, composite video and the convergence pattern signal.

A choice of rackmount or cabinet configurations, compact size and low power consumption (40 watts) make the 144 ideal for CATV or standard broadcast in either control room, bench testing, or field operation.

144 NTSC Test Signal Generator $2100
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Cable trucks were "mini billboards."

For extra interest, "orange bowls" were attached to tops of service trucks.

football classic awaited them. Friday evening an impressive cocktail party and dinner was arranged as a finale for what winners described as "the most wonderful trip ever."

Final publicity from the promotion was received with the return home of the winners, as local newspapers picked up the stories and pictures.

It is interesting to note that "Operation Orange Juice" ran shortly after a very successful fall "new season" promotion in the Jerrold systems. What made this promotion a success was the same principles of any promotion.

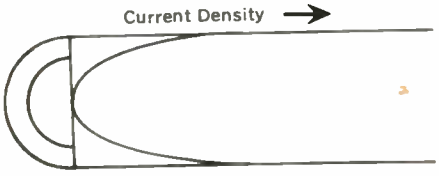
Advance planning . . . follow-up of details . . . complete cooperation between headquarters and systems . . . the individual system manager's ingenuity . . . timing and . . . luck. Yet it is well to remember that no part of this promotion was accidental. It was a completely defined promotional program which took advantage of every opportunity.

Without the complete cooperation of each and every Jerrold system manager and their staff, the final results would have been all but impossible to obtain. TVC

We wanted a cable with the advantages of solid copper, but at less cost to you.

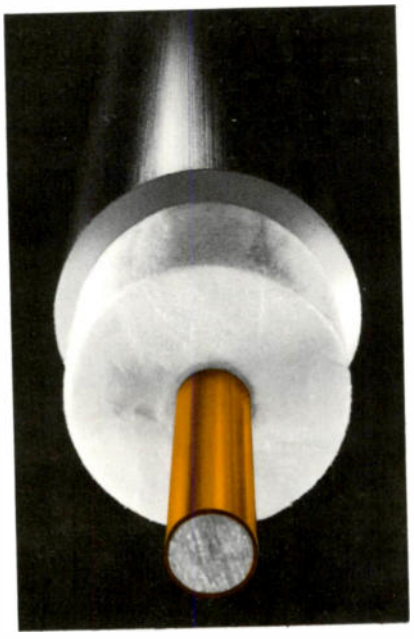
Copper clad aluminum gave us the edge.

A copper edge. On the center conductor for a CATV cable. Since CATV electronic signals are transmitted only along the outer surface—the edge—of solid copper conductors, most of the copper is wasted, electronically, anyway. So it makes sense to use the transmitting copper where it's needed most, around the surface. And let the non-transmitting core be more useful by being less expensive.



Penetration Of Current Into
A Coaxial Cable Center Conductor.

Copper clad aluminum conductor does just that. It makes a center conductor



for coaxial cable that handles the full range of RF signals, weighs much less than solid copper, and is easier to handle. And of course, much less expensive.

We offer this tested and proven center conductor as one of many choices in our CATV cables. It's another example of our ability to provide you with the finest quality cable in the CATV market, at the right price.

Whether your choice for your system is ALUMIFOAM®, (standard foamed polyethylene dielectric) or DYNA-FOAM® (with foamed polystyrene dielectric) you can now specify copper clad center conductors for your choice and receive the *same return loss values* and the *same attenuation characteristics* as with solid copper center conductors. Write for complete information and specifications today.

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TIMES
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Leslie Farey is a member of I.E.E.E. His involvement in TV dates back to 1931 when he built a rotating disc receiver to pick up the BBC in England. He has been in CATV manufacturing, system design, survey and management, in both the U.S. and Canada, since 1953.

CATV—Is It One Industry or Two?

This pioneer cableman believes "true CATV" could progress better if it had a "divorce."

By Leslie Farey, Vice President Com-Cable TV Inc., California

It would seem on analyzing our industry in this third decade of its existence, that the original concepts of CATV are rapidly falling by the roadside. Community antenna television was the enterprising small businessman's ingenious answer to television signals in areas blocked off by natural obstacles.

The majority of these early CATV systems were virtually built on a shoestring, and produced a breed of operators, who, painfully and methodically, solved the inherent problems, thereby laying the foundation for the complex systems we know today. The growth of these early systems was steady, if not spectacular, and almost without exception received support from the TV stations whose signals they received and distributed. This support was understandable as the CATV system gave the stations coverage which otherwise they could not get.

The basic primer for CATV was written by these early pioneers who overcame obstacles of financial and technical complexity that the young man of today would shudder about. As the pioneers will remember, getting a bank or any responsible institution to finance CATV was like asking them to rob Fort Knox.

During all this period CATV enjoyed relatively minimal control from the state and federal level because it basically was fulfilling a public service by filling in the problem areas of TV reception. Franchise payments were low, 2% average, restrictions were few.

Gradually the picture changed and one day certain big businesses woke up to the fact that here was a fertile area for investing money, and in fact a large proportion of these "Mom and Pop" systems, as they were called, were bought up by large financial interests.

Then Big Business Entered Our Industry

The next step was simple big business progression. Microwave had been granted to several areas for the purpose of bringing in distant signals. The use of microwave in the first instances was highly legitimate, and did give TV to thousands of viewers who otherwise would not have been able to receive television signals.

Soon the picture changed, microwave hopped one state line, then another. Soon a poor small broadcaster sitting in a sparse market, that at the best showing black ink in his books, had CATV systems sitting in his backyard showing programming that he at best could not present until the following week. This, I am sure, was the straw that broke the camel's back.

We are all familiar with the NAB actions, with the strong support of the FCC, the report and orders. But let us be fair. Did we not indirectly invite this action, I must agree, due to a small part of our industry.

Certain broadcasters are more enlightened than others. They see the inevitable writing on the wall. Rather than fight they switched, and bought into CATV a very interesting situation.

I am sure most of us are familiar with Newton's Law, for every action — reaction. This is CATV today. Little companies have taken over big companies before, it will happen again. The small communications by cable idea will overcome.

But enough! Let us consider further factors. The big interests moved into the large cities, which with few exceptions needed

The edible direct burial cable is dead.

Burying TV cable didn't kill the problems. Instead of being rained and snowed on, cooked in July, then frozen in January. And smacked by falling branches above ground. Cables were gnawed at by underground moisture. Chewed away by alkalines. And treated like TV dinners by gophers and ground squirrels.

Plastoid didn't make direct burial cables to exchange one set of problems for another. Our cables are protected with the most durable high molecular polyethylene jacketing. A self-sealant flooding compound. A super-powerful rodent repelling jacket. Every reel of cable is sweep tested. And inspected at each channel.

When the cable you bury is Plastoid, you can be sure it will rest in peace. Not pieces.

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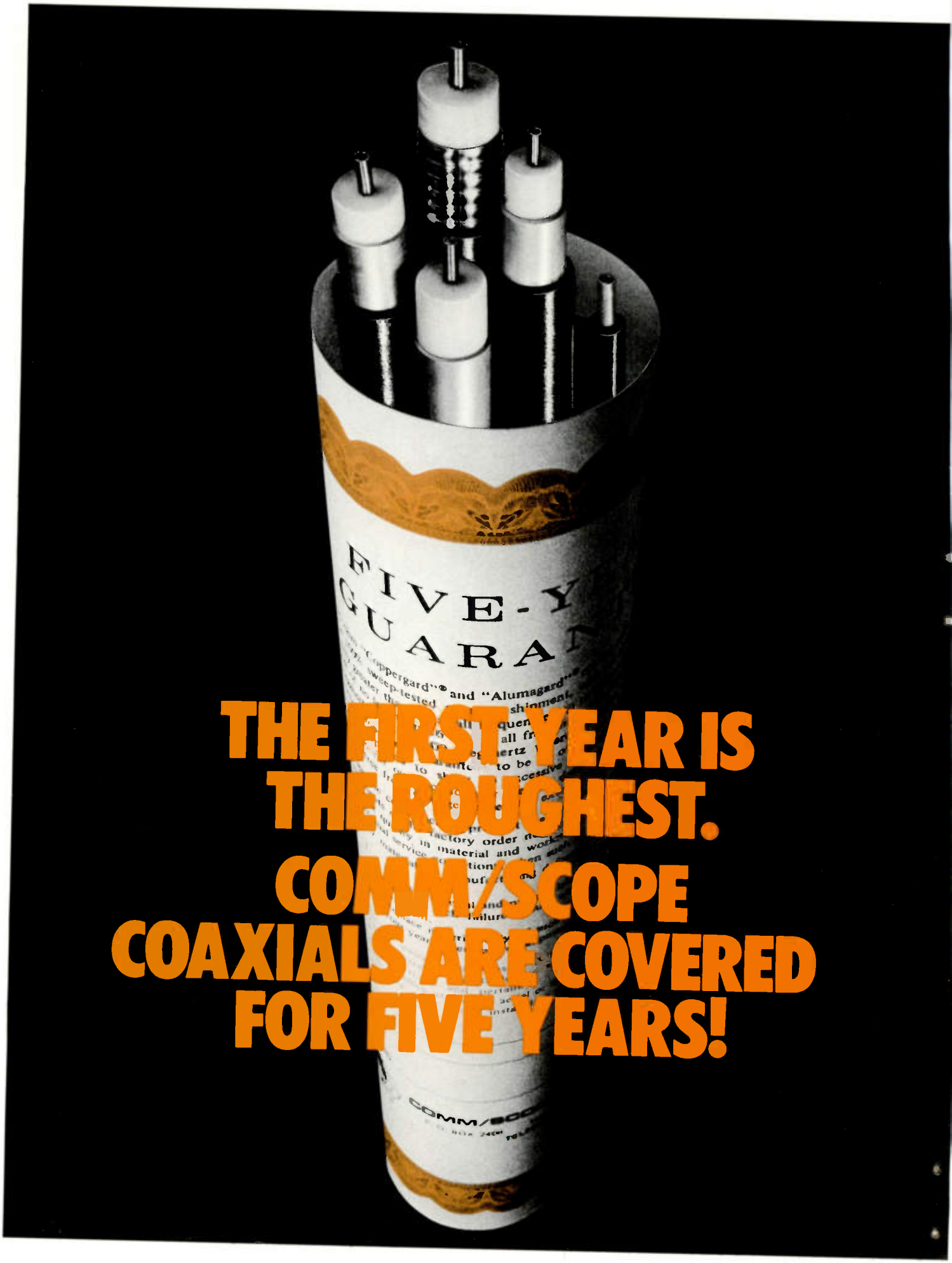
FIVE-Y
GUARA
and "Alumagard"
material and work
THE FIRST YEAR IS
THE ROUGHEST.
COMM/SCOPE
COAXIALS ARE COVERED
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If anything is going to go wrong with a cable, the first year is the period of greatest probability.

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CATV like a hole in the head. Exceptions are such cities as New York (skyscrapers), San Francisco and Seattle (hilly terrain). New York, for example, has a vast potential of television-starved viewers, denied over-the-air TV due to man-made structures, with their ghosts of the present, and the future. One New York company applied for, and received, permission for 18 GHz microwave to circumvent the tremendous cost of underground construction, and the technical problems that are almost insuperable.

Here then is "true CATV" in action; merely an extension of those early entrepreneurs who climbed mountains to find TV. But alas! I must confess that this is in fact merely an elusive dream. Here is a perfect captive audience; thousands upon thousands: the perfect breeding place for the fertilizer, mass communications media. So the cities were wooed. We are all familiar with what happened, large franchise fees, free studios, etc., etc. Today most franchise bidding would put to shame an old Arabian Nights slave market. What, then, was big business after? Certainly not CATV viewers, judging by the ridiculous rates that were set. I do not think so; multiple services was the goal. Multiple services, or as I prefer to call it — mass communications media — pay TV, data processing, surveillance, credit billing, you name it, was the goal.

Pay TV — the mecca — the pot of gold at the end of the rainbow. Over the years we have seen the story unfold, Bartesville — Etobicoke — Hartford — STV. Did they make money? NO.

The idea is simple. A large, fairly captive audience would spend several dollars per week to see movies, sports, etc., in their own home, without commercials. Gather together, mix, bake, and you have your perfect cake. But what resulted when the cake came out of the oven was a gentle deflation . . . the cake went flat.

What was the missing ingredient? Remember the customer was not subjected to having to drive a freeway, stand in line at a box office, suffer the barks and coughs of other viewers, had access to his refrigerator, and bar. No solutions, the projects simply died.

It is my considered opinion that pay TV will not succeed for at least 10 years, not until we have at least 4 ft. x 3 ft. flat TV screens on our walls, which will create the same effect as the movie theatre, or a ball or football park.

Now we have 20, 27, 30 and more channels promised — an engineer's nightmare come true.

Cable Services — "Mass Communications Media"

I say the time has come to separate CATV from other cable services. CATV is the supplying of TV signals to people, the other media should be separated and called mass communications media. It is inevitable that this must eventually come. I myself predicted it many years ago. But in heaven's name, do not call mass communications media CATV.

Our old CATV'er has had his back forced to the wall. He no longer is the pillar of local society, but generally only the local manager for big business that may let him sign the payroll checks. The old intestinal fortitude of the pioneers has gone. They worked on a problem in the field where it happened, not in an air-conditioned laboratory. The CATV industry today labors under a great load — legal and operational — not because it is CATV, but because the wrong culture was fed to its growth in the form of extraneous additives which, while stunting its growth by legislation, also removed it from the path it was intended to go; namely TV to people who could not get it.

To close, I advocate that mass communications media be divorced from CATV and progress under its own banner. There are certain advantages: (1) It is closed circuit, no longer under FCC rules, since nothing comes over the air. (2) Mass communications media is mainly composed of information that is not wasteful of spectrum space such as a TV channel's 6 MHz. (3) Control is much easier.

Finally, payment for these extra services will be made by business interests and is not influenced by recalcitrant customers whose complaints invariably are located in their TV receivers.

EDITORS NOTE: What is your opinion? Do you have a reply to this author? Are you concerned about something in the CATV industry? Send your comments to: Editor, TV Communications, 1900 West Yale, Englewood, Colorado 80110.

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Gee, Mr. Jackson, I had no idea this is what you meant by originating a new program.

A Pictorial Review of 1970: CATV Grows and Groans

If we do get the franchise to wire the jungle, Mr. Tarzan, we will wire all public buildings free . . . make a guaranteed annual donation to your swinging vine fund, and . . .

You know, when most town councils turn down a cable franchiser, they're a little more civil about it. Maybe we could work out that 42% franchise fee you suggested.

How would you like to be a big star in local program origination, baby? We should be able to appeal to a special interest or two.

And here, Miss Berg, is where we file our correspondence with the NAB. A dozen similar files already overflow with the creative writings of the "Free Television News Bureau."

No, I'm not from the cable company! Lady, this is not the time to be worrying about getting your cable installation.

Sorry, I just don't think enroute programs via CATV is the answer to your competitive problems with airlines.

We broadcasters want to be fair, but isn't there some other line of work you CATV people could take up?

It sure is a pleasure to meet you gentlemen of the city's TV Cable Acceptance Committee.

Local origination of TV programming has its own very special appeal. Whether the show is a round-table discussion, a parade, a township meeting, or on livestock management, the viewer is directly *involved*.

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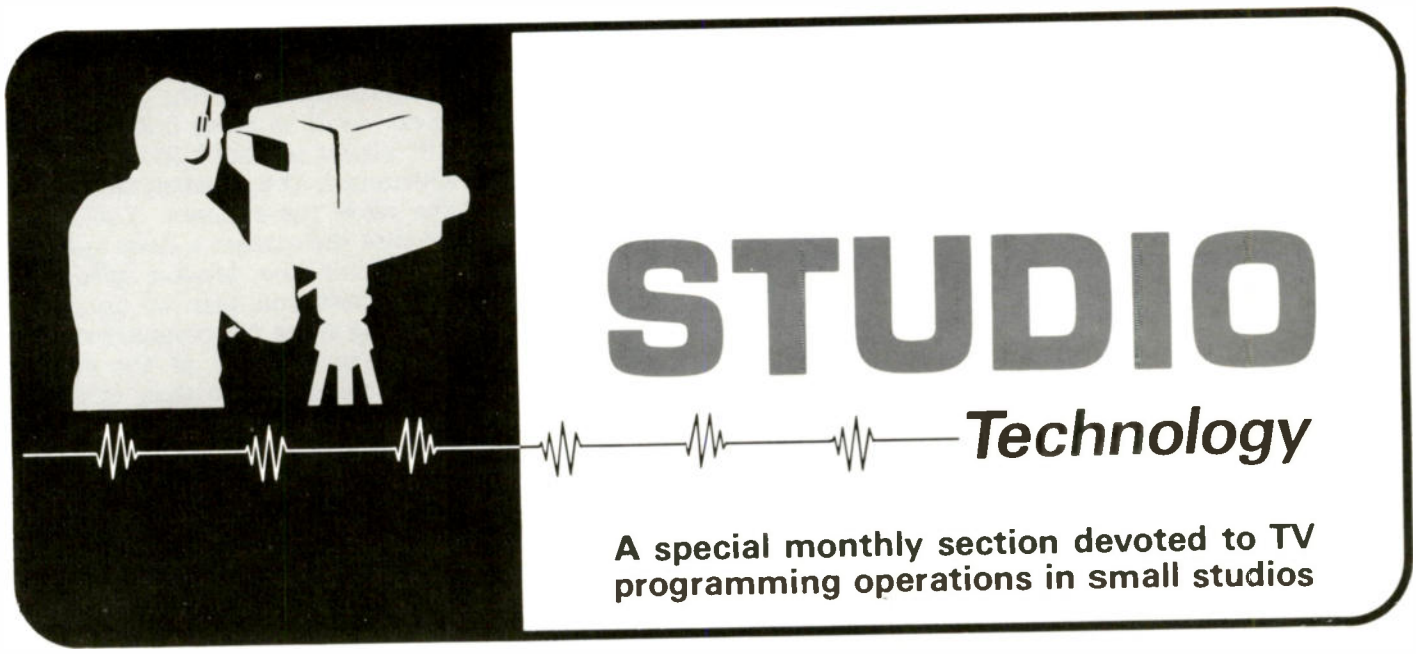


Racks, Panels and Consoles: Not Just "Equipment Holders"

When designing a studio control room for optimum efficiency, give considerable forethought to the units that will hold your equipment.

By Jack A. Rickel
Communications Consultant

One part of origination studio design that is often neglected is selection of proper racks and consoles in which to mount the equipment. Or, if they are remembered, they are given the lowest possible budget priority and the system planner uses the cheapest thing available.

Actually, racks and consoles are a vital part of any system since they contribute to the appearance and interconnection of the system and improve operator efficiency.

Probably the first people to use a version of racks were the telephone companies in their central exchanges. They had a lot of equipment to mount in a small space. Interconnection had to be as short as possible and maintenance people had to have easy access to it.

The earliest racks were pieces of angle iron bolted into a framework, with holes drilled and tapped into one of the flanges to which equipment could be bolted. Front, top, back and sides were open. Many CATV headends have been designed using a more modern version of this. Today's open rack consists of a heavy base which can be bolted to the floor and two side rails spaced apart by the base and a top piece. The side rails are drilled and tapped and the front panel of the equipment is bolted to the side rails.

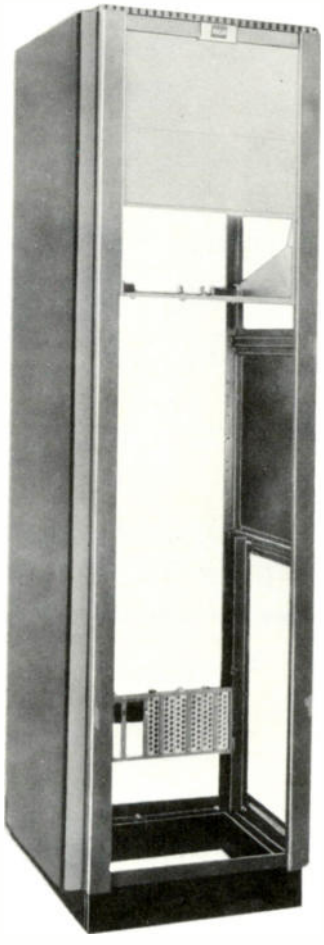
This leaves the rear and sides of the equipment completely open. It is a good way to get adequate air ventilation around the equipment, but offers no protection from dust, dirt and accidental damage. A completely enclosed rack will make a neater looking installation and a more efficient one in the long run.

Early rack standards appear to have been established for the telephone industry by Western Electric and have since been adopted by E.I.A. and R.E.T.M.A. The width of a standard rack is nominally 19" although special purpose racks are available in 24" and 38" widths.

Most off-the-shelf equipment for rack mounting is designed to

the 19" standard and we'll confine our discussion to that. Actually, the side rails are designed to have a width of 19 1/8" and the panels 19" plus or minus 1/64" so there is a slight tolerance for adjusting the panels from side to side.

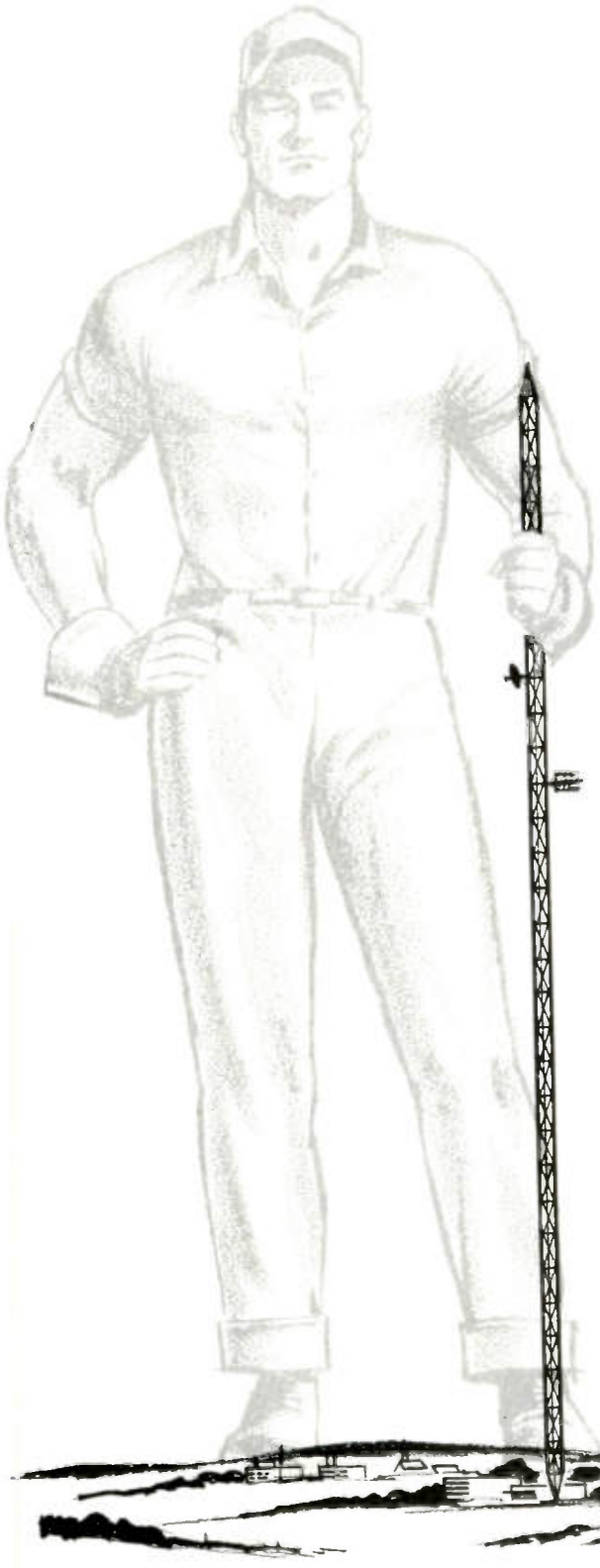
Today's racks have two styles of mounting holes, the first is the standard hole drilled in the heavy metal of the side and this hole is tapped to accept a 10-32 standard machine screw. The second method is to have larger holes stamped out of a thinner side rail over which one installs a "speed-nut" clip and the mounting screw is an ornamental head, self-tapping metal screw. Both types are widely used with equal effectiveness. Most of the better racks have mounting rails on both the front and the back and equipment can be mounted either place or both if the depth of the equipment will permit.



Shown here is a partially assembled example of the RCA BR-84 series of cabinet racks. This one is the BR-84E with some accessories (side panel, blank front panels, panel trim strips, electrical shield shown on far side, and a terminal board bracket on the back).

Speaking of depth, equipment racks come in three basic depths: 18" (front to back), 22" and 25". Obviously, the greater the depth the more the expense. You must be sure the cabinet is deep enough to mount the longest piece of equipment you plan to use, plus allowing space for connectors and wiring to the rear of the equipment chassis. More than one system designer has found himself with a rack too short in depth to hold his equipment.

Rack panels come in a wide variety of styles and material. We'll discuss the more common ones. Panels are usually flat or formed. Flat panels are made from 11 gauge steel or 1/8" thick aluminum, 19" wide and in various heights. Formed panels are normally made of 1/16" steel with a 5/8" lip or flange bent in on all four sides. Since rack rails are commonly recessed 5/8" from the front of the cabinet, the 5/8" flange on the formed panel makes it flush with the front. Flat panels are usually notched on the 19"



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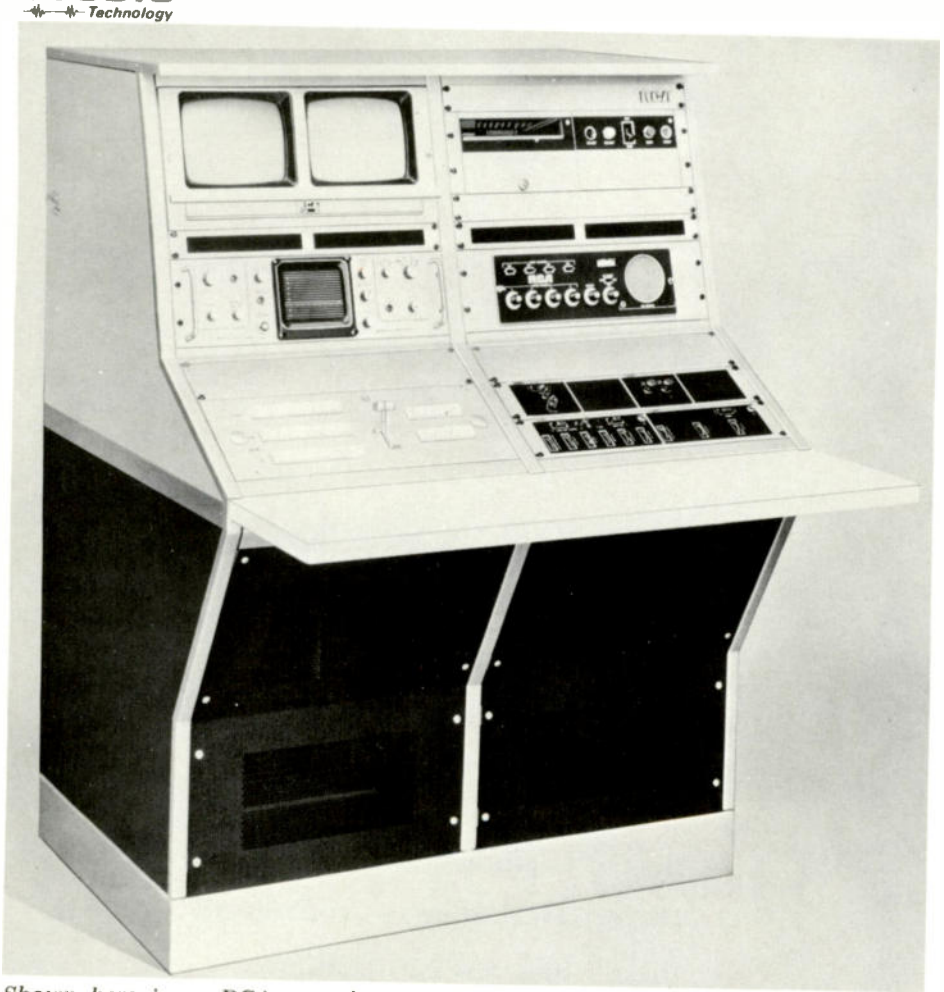


Shown here is an RCA console, typical of many available to permit control of cablecasting operations by a single operator. Many console configurations can be formed from the various modular components available from RCA, TeleMation, etc.

side to hold the mounting screws. These notches are 1/4" high and 1/2" deep with the inside of the notch rounded. This allows the panel to be moved slightly, horizontally, to make the panel edges line up. Formed panels would be difficult to notch and usually have oval holes corresponding to rack notches punched in the front of the panel.

Panel heights are standard with most manufacturers. The standards are based on 1 3/4" height. This is the smallest standard rack panel available. Larger sizes are made up of multiples of this 1 3/4" height and it is easy to calculate rack cabinet heights by using the panel space.

If a one-space designation is assigned to a 1 3/4" panel then all larger sizes are multiples of that one space. For example a 3 1/2" high panel becomes a two space (2 x 1 3/4" = 3 1/2") panel and a 12 1/4" high panel becomes a seven space panel. Rack cabinets are available in standard heights of 35", 43 3/4", 52 1/2", 61 1/4", 70" and 78 3/4" which is respectively 20 panel spaces, 25 spaces, 30 spaces, 35 spaces, 40 spaces, and 45 spaces. Thus you add the number of panel spaces your equipment will require and you'll know how big a rack to order.

The least expensive rack cabinets are made in one piece by welding sides, top and bottom together, but these have several disadvantages. For one thing, if a side panel becomes damaged or dented, it is not possible to replace it. For another, systems frequently require several racks of equipment side by side and it is difficult to accomplish inter-rack wiring if the sides are welded to the cabinet. Furthermore, if the floor on which they are placed is not perfectly smooth, multiple racks of the self-contained variety tend to lean drunkenly toward or away from each other.

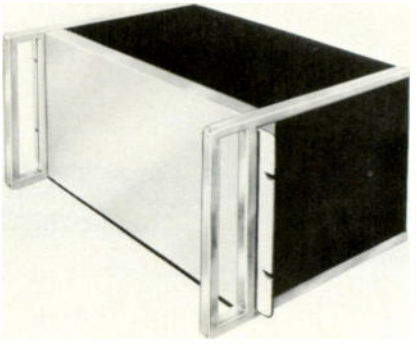
The superior method is to use modular racks which come as separate subassemblies consisting of frames, side panels, top panels, bottom panels and doors for front or rear. They can be assembled in any combination. For example, four rack frames can be bolted side by side to each other and the assembly will require only two side panels, one for the left side and one for the right.

This leaves openings between the frames for cabling between equipment mounted in different racks. Doors can be either flush or surface mounted and hinged for either left or right hand openings. Catalogs of modular racks are available from several manufacturers which will assist the planner in designing racks to his specific requirements.

Consoles came into popularity in the late 1940's and early 50's when television came along, because television equipment needs frequent adjustment and the operator needs to sit where he can comfortably reach all the controls.

Early consoles were made up of multiple sections, 10 1/2" wide, bolted together. The top of the console held a picture monitor, a waveform monitor and camera control at a convenient angle for operator viewing and manipulation. A front ledge gave the operator a place to rest his arms and the pedestal below held a power supply. These were always low enough in height so the seated operator could look over them, through the control room window into the studio.

Most of today's consoles are built to the same 19" wide standards as are racks. For example,



Beechwood Manufacturing now offers rack mount adapter kits to adapt 15¾" wide cabinets to mount in 19" racks.

one can obtain two 9" picture monitors or two waveform monitors mounted side-by-side on a standard 19" wide panel. With many control rooms designed for "blind" operation (so the operator cannot see into the studio) even height isn't necessarily important.

In the modular series, there are two basic designs for consoles. The first is a one piece frame which has the top panel section tilted back at a 45 degree angle and the front ledge is optional. The front ledge is called a "work-writing surface" and may be purchased in various depths to hold from 3 1/2" to 17" of panels mounted horizontally. A word of caution here, these ledges are only 3 1/2" deep and any equipment deeper than that is liable to gouge the operator's knees. These ledges can also be mounted on the front of a rack to make a tall console.

Formerly, all consoles and racks were painted grey, but today the designer has a wider choice of standard colors such as tan, green, blue or black. Any color to match your decor is available on special order as are such things as square corners and shadow box trim of brushed aluminum.

Today's solid-state electronic equipment does not generate nearly as much heat as tube equipment did formerly, but heat build-up must still be considered in mounting multiple equipment in racks or consoles. If the total power consumption of the equipment mounted in any one cabinet is going to exceed 500 or 600 watts, some form of extra cooling should be considered. Transistor performance deteriorates if they become too hot. There are a wide selection of fans, blowers and filters available to supply extra cooling when required.

The air flow should be designed to enter the bottom of the rack and out the top since this aids normal heat convection. Where heat production is less than that which would require additional cooling, several things can be done to aid natural convection. Use a grille panel top and bottom of each rack, or use louvered doors and blank panels and louvered or perforated top panels where dust is not a problem. When mounting several identical pieces of equipment (such as modulators) in a rack, allow at least 1 3/4" blank panel between each one.

Since many pieces of electronic equipment are mounted in a single cabinet, it is important that the cabinet have sufficient electrical outlets to serve each one, plus a spare or two for soldering iron or test equipment. These can be provided by mounting conduit and electrical outlet boxes or plug-mold strips inside the racks or consoles.

Racks and consoles are available from so many people we'll only mention a few to give you an idea: Emcor Division, Ingersoll Products; Vent-Rak; Scientific-Atlanta; California Chassis Company; Par-Metal; Premier; RCA; Stantron Division, Wyco Metals; Electronic Enclosures; Bud; and many others.

Let consoles and racks help your system be more efficient and attractive . . . with proper advance thought and planning. TVC

Studio Notebook

answers to program problems

By Ken Lawson

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

ANSWER: If you visit a broadcast television station you will find that they use *both* film cameras and video cameras for specific tasks. Cost per hour of production is not as important in comparing tape and film as are such things as the kind of program to be produced, and the personnel available to produce them.

For productions made *in the studio* it is more efficient to use video cameras — say two on the studio floor, a film chain camera, and possibly others — all tied to a central video control and switching console instead of film cameras.

The reasons for this choice are: (1) many programs are transmitted to subscribers "live;" there is no time for processing; (2) some programs require rehearsal or changes during the time of production, and instant playback, erasing, and editing is essential; and (3) simple special effects such as split-screen, "supers," and lap-dissolves are more easily and quickly accomplished with video equipment.

Because of the necessity for "live" and instant playback of television productions, most cable operators have been slow in considering film as a supplemental tool in producing some types of programs where film methods have real advantages.

Color film productions *on location* are infinitely simpler than productions with video cameras and recorders, unless a coordinated multi-camera production is required. The equipment is light in weight and requires no recorder, cables, electronic test equipment, extensive lighting, or AC power.

Film permits the cameraman (who needs no video electronics training) to operate in poorer lighting situations to pick up programs technically impossible with the types of color video equipment available to most CATV systems. Manpower, maintenance, and set-up time requirements are substantially lower for remotes with film.

Equipment reliability usually shows up in remote program work, and the film camera — at least 16mm professional models — are far more reliable than video systems.

As CATV operators become more involved with advertising, I think they will discover some of these advantages of film — especially when filming advertising matter "on location." Also, advertisers will demand a highly professional picture quality for their ads. The quality of a video signal will usually be better when played back on a color film chain camera compared to a tape recorder — especially with respect to picture stability and switching. This is particularly true when comparing film to the ½" video recorder.

In my opinion, the few points analyzed in this column are the critical ones which will control film vs. tape decisions, but some of these other factors will be discussed in next month's column. TVC

Have something to show for yourself.

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

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

Check into it. Make your subscribers, your financial statement, and the FCC happy. Call one of the Kodak offices listed below for more data.

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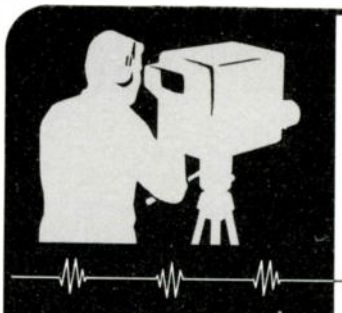

STUDIO Equipment

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

Lightweight Super 8 System Is an Economical Origination Tool

A new Super 8 film system may prove to be a real boon to cable operators for news coverage, special programming and some advertising applications. The system incorporates ordinary Super 8 technology with a modified tape cassette recorder . . . and results in sound-on-film Super 8 cartridges.

The Synchronex Corporation, 635 Madison Avenue, New York, N.Y. 10022, offers the Synchronex Mark IV. Included is a 4:1, power zoom, through-the-lens, automatic exposure Super 8 camera and a sound recording unit which can also be used by itself as a full-function tape recorder. The camera uses standard Super 8 film cartridges. The recording unit uses regular tape cassettes. Both are available about as widely as a roll of Life Savers.

A coil cord carries synchronizing signals from camera to recorder. The microphone has a 24-foot extension cord. The semi-directional mike has a one-to-six-foot maximum sensitivity range to cut down pick-up of unwanted background noise. With this system, news coverage can easily be a one-man operation. Cost of this full system is $295.

The sound films produced on the system can be played on any standard Super 8 sound projector. Cable operators could use playback systems like the Riker film chain. Both Riker and Synchronex use 24 frames per second. Synchronex claims "films can be easily edited using regular equipment." "Perfect lip-synchronization" is also claimed.

If you are thinking that Super 8 is strictly for the amateurs, you will be interested to learn that NBC is experimenting with Super 8 and they believe it will have a regular place in their news operations within 2 to 3 years. Super 8 film costs about half that of 16 mm when all processing, etc. is considered.

The main drawback to the system is the processing delay. Currently the only way to get the recorded sound placed on the film cartridge is to send both the film and the tape cassette to the Synchronex lab in New York. Total delay could be as much as ten days. However, there are numerous ways to reduce this time by locally processing the film (to save about two days for Synchronex) and by using air express transportation, etc.

This system is worth looking into. No doubt Super 8 technology will evolve some very useful improvements for television origination . . . and help CATV originators have maximum flexibility, mobility and economy. TVC

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FOAMFLEX costs no more than its imitators. Immediate deliveries are available in all standard sizes from our New York plant or one of our 7 strategically located warehouses.

Phelps Dodge coax for every need. Exclusive SPIRAFIL® II air-dielectric for lowest loss... and FOAMFLEX, the original foam-dielectric cable. Both at competitive prices.

PHELPS DODGE COMMUNICATIONS COMPANY

Students Produce Programs For California Cable System

Once again cooperative relationships between educators and cable people have proven mutually beneficial. Interesting, free programs . . . trained studio technicians for the future . . . and favorable community relations are results of this example.

Carlmont High School is one of the first schools in California to produce programs for regular weekly transmission over cable television.

Events of campus and community interest are recorded each week on videotape and cablecast on "The Carlmont Hour" by the Peninsula Cable Television Company. The programs are shown from 7 to 8 p.m. each Thursday and Friday for viewing by a potential audience of 10,000 CATV subscribers in Belmont, San Carlos and Redwood City on the San Francisco Peninsula.

Students tape the proceedings as faculty video director Phil Arnot (center) interviews other instructors.

The show is presented as a community affairs program by Peninsula Cable.

Carlmont High School counselor Joe Zucca, a former mayor of Belmont, was able to get financial backing from the local community and educational sources. He has recently been promoted to principal of another high school where he is working toward development of similar TV productions by students.

An Ampex VR-5100 video tape recorder, a monochrome television camera with switcher-fader and a television monitor are used in recording the programs. On taping days, social studies teacher Phil Arnot, who acts as program director, and student assistants move the equipment on-location for taping.

"We tape such events as orchestra rehearsals, drama presentations, seminars on current issues and sports events," said Zucca. "Purpose of programs is to better acquaint parents and others in the community with the activities of the high school students.

"Our series of tapes includes a Carlmont track meet, a description of the function of the Carlmont girl's physical education program and a taped interview with instructors and students before they took on 10-day field trip to the Grand Canyon, where they lived with and studied the cultures of Navajo and Hopi Indian tribes. The tapes have been well received by our viewers," said Zucca.

"We have received letters expressing appreciation for our programs. The tapes have proven educational because they help expose our students to a variety of issues and activities."

The student-assistants, Mike Gilman and Sandy Sorenson, attended the Ampex video training school

Joe Zucca guides one of the members of the high school production group . . . showing him proper recording techniques.

in Redwood City for five weeks to learn technical skills required to operate the video tape recording equipment. Other students participate in directing and producing the programs.

"We have been producing shows for only two months, but we plan to expand our air-time up to four hours," said Arnot.

Carlmont plans further expansion of its television activities. This year, the school hopes to install a complete closed-circuit television system which will link it to neighboring high schools and elementary schools and allow program origination from its own studios. Gary Shirey, chief technician for Peninsula Cable, reports that the cable system plans to install most of the closed-circuit cabling as a service to the school system.

The main studio will have a radio broadcast room and a large studio with high ceiling for light racks and microphones. In addition to its main studio, Carlmont also will be able to originate programs from five locations on campus. Shows will be produced from the drama department, the auditorium, athletic field, gym or almost anywhere on campus.

When the school was built 18 years ago, its orchestra room was designed for conversion into a television studio. Beginning next semester Carlmont will offer a class in TV production.

During last school year "The Carlmont Hour" was produced regularly for about seven months. Discontinued for the summer and early fall months, the program has just recently resumed on a regular weekly basis. The school also produces about two hours of "specials" per month. TVC

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You get a versatile, broadcast quality studio: the new IVC COLORCASTER III studio package capable of live, videotape, slide or film programming. You'll own all the equipment necessary for television commercial and program production in color.

We designed the COLORCASTER III package to specifically meet your needs. And there's no trick about the price. Most studio color cameras used in broadcast applications cost far more than our complete, 2-camera system.

The COLORCASTER III package includes two IVC-90 color cameras—one studio and one filmchain. These are the most widely used low-cost color cameras in television today. Another major item is the new IVC-870 color videotape recorder, with assemble and insert editing. Also included are the: audio and video consoles, multiplexer, slide projector, film projector, switcher with special effects, and a studio lighting kit plus the sync generator, distribution amplifiers, intercom, cabling, and all other items necessary to give you a totally complete package. Every component has been pre-selected for your optimum operating efficiency. Home viewers will see color pictures on your cable channel that match the quality of the network channels on your system.

The COLORCASTER III package sells for $47,900. If this combination doesn't suit your needs, ask us about other available studio packages.

Why an IVC System?

Owning an IVC system provides you with three forms of insurance: (1) Insurance against incompatibility—all equipment has been engineered to work together. (2) Insurance against malfunction—an IVC cable television studio is designed for upgrading, expansion, or re-configuration to suit your future needs.

We Install What We Sell

You provide the location—IVC will handle all details of system planning, installation, set-up and training. Our experienced personnel are part of the package, with systems know-how that parallels the proven performance of IVC equipment.

IVC is a pioneer in the installation of cameras, recorders and complete color systems in CATV. IVC has supplied the cable television industry with more color recorders and cameras than any other manufacturer.

Local origination of full color programming is easily and economically within your reach, with broadcast-proven color cameras and videotape recorders. For complete color studio systems information write us in Sunnyvale or contact your local IVC sales office.

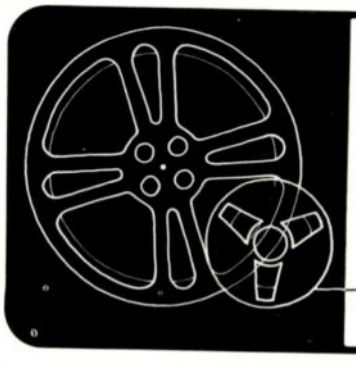
This complete color studio at Peninsula TV Power, Inc., Sunnyvale, California is typical of studio systems designed, and installed by IVC.

IVC

International Video Corporation

675 Almanor Avenue
Sunnyvale, California 94086
(408) 738-3900

The standard for color in cable television.



CATV Programming

software news and tips

Cox Experiments with Origination

Will local origination supported by advertising be a financially viable operation? That's the question behind a four-fold experiment currently under way by Cox Cable Communications. Thomas Dowden, director of development at Cox reports that four separate Cox systems are testing four different approaches to origination.

Their system in Loch Haven, Conn., is trying the brokerage concept . . . leasing a channel to the production firm of John Kepler, Pittsburg, Pa. There Kepler is fully responsible for operation of the channel on a monthly minimum lease/share profit combination plan. Cox maintains quality and standards control. This arrangement has been under way just over a month.

The Cox system in Lewistown, Pa., is originating programming on a "do-it-yourself" basis. Cox personnel and programming are relied upon to handle everything in their local originations. In San Diego they have a complete staff of professional program people that turned on their local origination channel within the past few weeks. Additionally, the San Diego system leases another channel to Chuck Johnson (of Black Video Syndication) who went into commercial operation in early October.

The fourth and probably most interesting experiment is at the Cox system in Warner Robins, Georgia. There Cox has undertaken a joint venture with Young & Rubicam, Inc., a New York based ad agency. In this case a four-month test project will take advantage of Cox facilities and local staff, and Y&R advertising and programming know-how. That project has been under way for less than a month. At this early stage, the community seems quite receptive to the 27½ hours per week of programming offered by the cable channel (called Studio 12). About 13 hours per week is live . . . the rest is replays and films.

Some advertising contracts are already nailed down. Sponsorships of quarter-hour segments typically sell for $30 including live and taped-replay exposure. Several local firms have been ad buyers so far.

Regarding ads via CATV, a recent edition of the *Wall Street Journal* reports that such big advertisers as Montgomery Ward, American Airlines, Campbell Soups and Lever Brothers are committing ad dollars to CATV. Sears is also reported to be looking hard at CATV for the first time. Wards pays only $2.50 for 30-second spots on the 7,000 subscriber system in Ottawa, Ill. Advertisers in Cape Kennedy, Florida, (a 26,000-set system) pay $36 for 72 ten-second commercials.

Do you plan to sell advertising for your local origination efforts in the coming year? If so, you will want to take advantage of the free listing *Standard Rate and Data Service* (SRDS) is currently offering cable people. SRDS wrote to all systems with 3,000 or more subscribers and included listing forms. If you did not get one (regardless of the size of your system) call (312) 966-8500 or write Ray Neihengen, Manager of the CATV Section, SRDS-Television Directory, 5201 Old Orchard Road, Skokie, Ill. 60076.

The listings will appear in a new section of the directory, beginning in the March 15th issue. Deadline is January 15th. The new section will be updated monthly, so if you aren't ready to set ad rates, etc., contact SRDS later. This is the directory that ad agencies use in planning advertising programs.

Several different authors are currently preparing in-depth articles on the various considerations involved in CATV advertising. In coming months watch for authoritative *TVC* features on how to build a revenue-generating ad program for your system . . . how to construct a rate system . . . where to look for prospective advertisers, etc.

This year National Foundation-March of Dimes is preparing promos to be used by CATV systems. To assist The National Foundation in sending you material compatible with your CATV equipment, send a brief note to Drex Hines, Director of Broadcast Services, The National Foundation-March of Dimes, 800 Second Avenue, New York, N.Y. 10017. Let Mr. Hines know what kind of origination equipment you have (message wheels, scanning systems, video tape & film gear) and any other specifications necessary. Take a minute and drop him a line today.

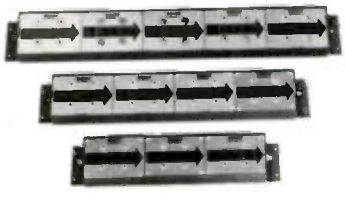
National Telesystems Corporation, headed by Jack Mann, is currently showing a pilot tape of "Green Valley Cable Nursery School" to CATV origination leaders. The program looks good and is generating interest on the part of educators as well as cable people. Mann says he plans to have the show ready for daily cable system use by early March.

Tele Video Productions, Inc., a new firm headed by Bill Baker, has acquired the video facilities once operated by millionaire John King under the name KR Graphics. Baker, operating at 201 S. Cherokee, Denver, Colorado 80223, plans to produce specialized programming fare for CATV. Currently he offers a tape duplication service using Sony ½" B/W, Craig ½" B/W and IVC 1" color equipment. TVC

We break clichés at Benco.

Excuses, excuses, excuses. You hear them all the time from manufacturers with poor quality control. Sadly enough, in many CATV communities, viewers have had to accept poor reception. They take comfort in the cliché: Nobody's perfect.

We don't. Because at Benco, we're perfectionists. Everybody here is expected to turn out equipment that's picture perfect. So we're tough to work for. But we're easy on your viewer's eyes.



Built by perfectionists for perfectionists.

Model CLI — 12, 16 or 20. Versatile indoor, in-line directional multi-tap for MATV systems connected to CATV. Up to 20 directional tap-offs and 6 attenuation values from one input connection. Clipper line extender can replace first plate.

BENCO

Benco Television Corporation
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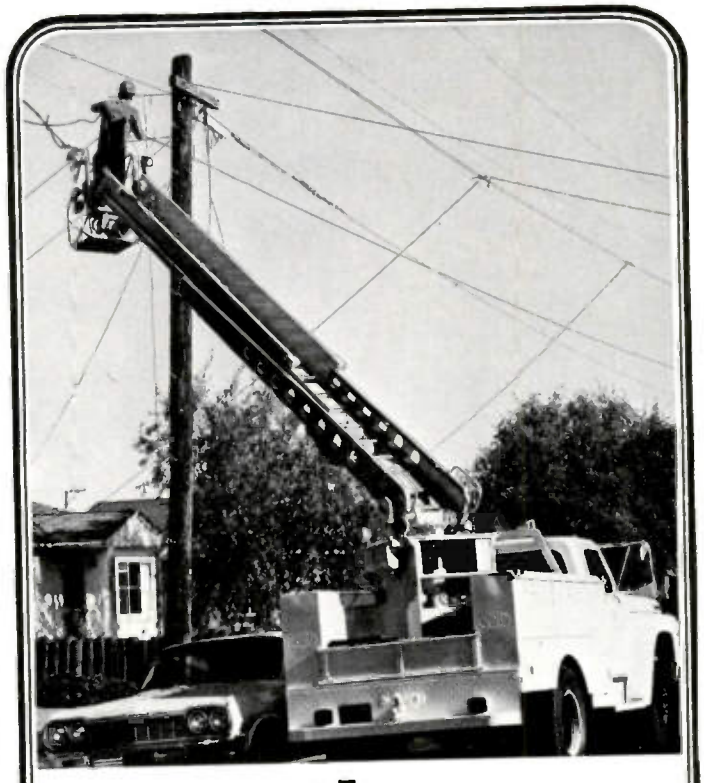

the "way out" aerial ladder

The LH-CATV Series aerial ladder, available in 24 to 36 foot lengths, enables workmen to *reach way out* beyond parked cars, trees, drop wires, and other obstacles.

Workmen can string cable or strand, splice, wreck or patrol in a fraction of the usual time.

Equipped with many features, including optional fully powered, aerial man-lift top controls, self-leveling basket, and tool power at the top.

Write today for our complete catalog of LH-CATV aerial ladders, personnel booms, and other CATV equipment.

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FOR EVEN GREATER REACH, FIBERGLASS BASKET PERSONNEL BOOMS ARE AVAILABLE IN 24 TO 40 FOOT LENGTHS (45′ WORKING HEIGHT).

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ROUTINE ATTENTION

That's how much maintenance to expect with your new Ameco Channeleer. It's the original high-performance, low-maintenance signal processor. Feed the Channeleer the same signal you fed your old headend gear. No more color smear or sound bars. Noise level (snow) will drop, spurious beats and adjacent channel interference will disappear.

Never fear future regulation changes either . . . non-duplication connections are available on the rear panel. In addition, channel changes are easy. The input and output modules can be field-changed, with no re-tuning or other adjustments. Users of more than 1100 Channeleers appreciate ZERO routine attention. Why not join them? Call Ameco's ACTION-LINE collect. 602/252-7731.

ADVANCED CHANNELEER CIRCUITRY

Recommended input (picture carrier)	0 to +10 dBmV
Recommended output	+54 dBmV
Minimum input (picture carrier)	−14 dBmV
Minimum input (sound carrier)	−24 dBmV
AGC control	± 0.5 dB for input change from −14 to +30 dBmV
Output level control	12 dB range (video-to-audio ratio constant)
Noise figure	7 dB
Minimum return loss	16 dB input & output
Image rejection	50 dB minimum
Adjacent channel carrier rejection	50 dB minimum
Video IF response	41.57 to 46.50 MHz, ± 0.25 dB
Carrier substitution oscillator	45.75 MHz, crystal controlled
Spurious signals	60 dB down minimum
Power requirements	95 to 130 VAC, 60 Hz, 30 Watts
Physical dimensions	19 x 17 x 5¼ inches
Weight	19 pounds

AMECO Incorporated, Box 13741, Phoenix, Arizona 85002, Telephone 602/252-7731

Call or write for your gift and additional information

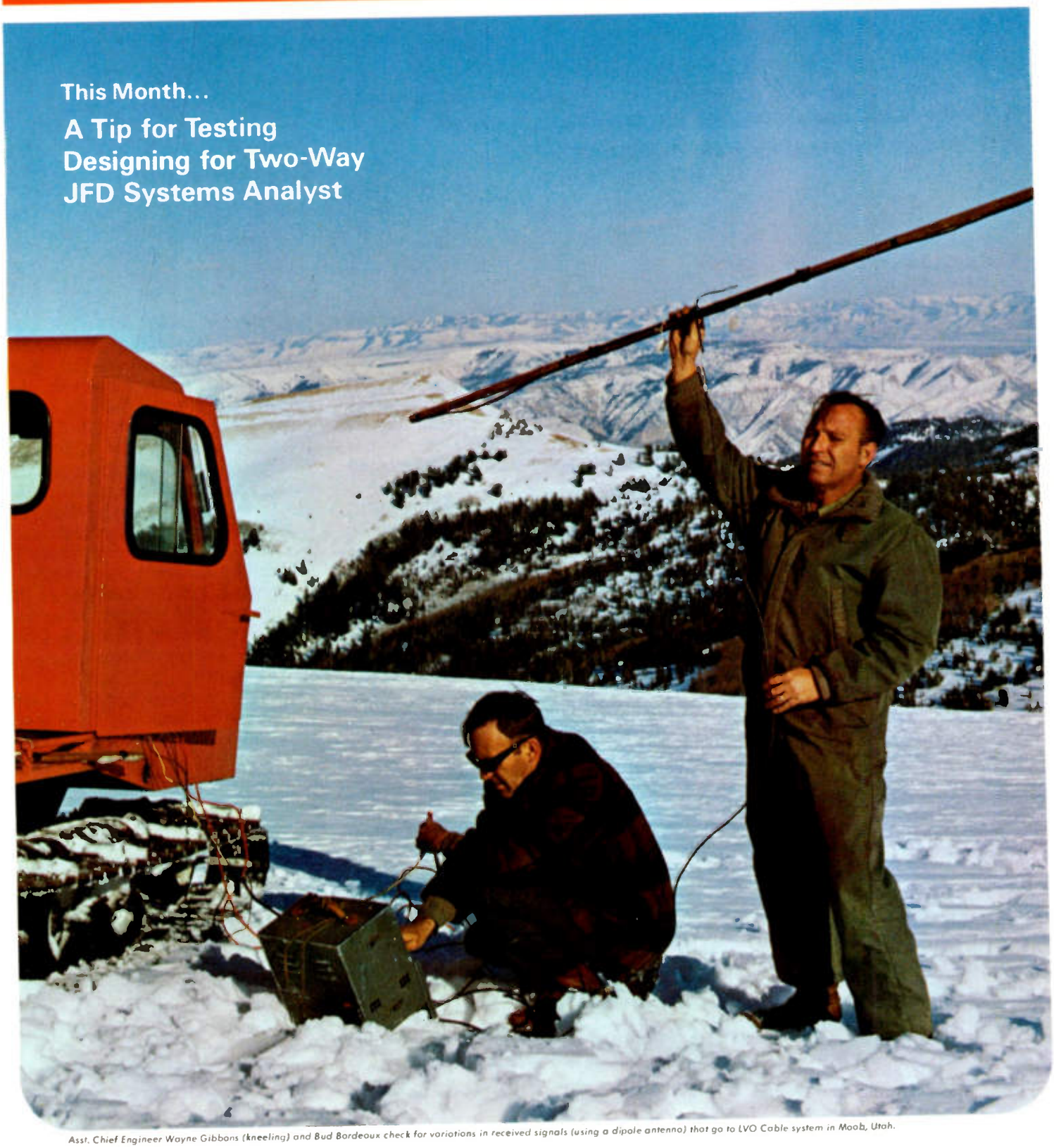
December 1970

TV Communications

CATV Technician

This Month...

A Tip for Testing
Designing for Two-Way
JFD Systems Analyst



Asst. Chief Engineer Wayne Gibbons (kneeling) and Bud Bordeaux check for variations in received signals (using a dipole antenna) that go to LVO Cable system in Moab, Utah.

Design Considerations For Two-Way Transmission

This detailed look at bi-directional transmission was presented as a paper at the national convention of the Canadian Cable Television Association last May. This is the third and concluding part.

By Michael J. Rodriguez
General Mgr., Electronics Division
Vikoa, Inc.

The first two installments of this article reviewed general design objectives and potential methods of achieving bi-directional transmission. This final part looks at the more practical problems relating to the design and operation of such a system.

The theory of diplex filters has been well described in a variety of literature where it has been shown that a perfect match at the input terminals of a diplexer requires the component filters to be complementary. Further, it has been established by researchers* that for a given set of design requirements such a skirt selectivity, minimum stop band rejection, number of branches, etc., the Elliptic filter yields the best group delay characteristics and for frequencies below 300 MHz (due to the physical realizability of designs in lumped circuits) it also yields the best passband flatness.

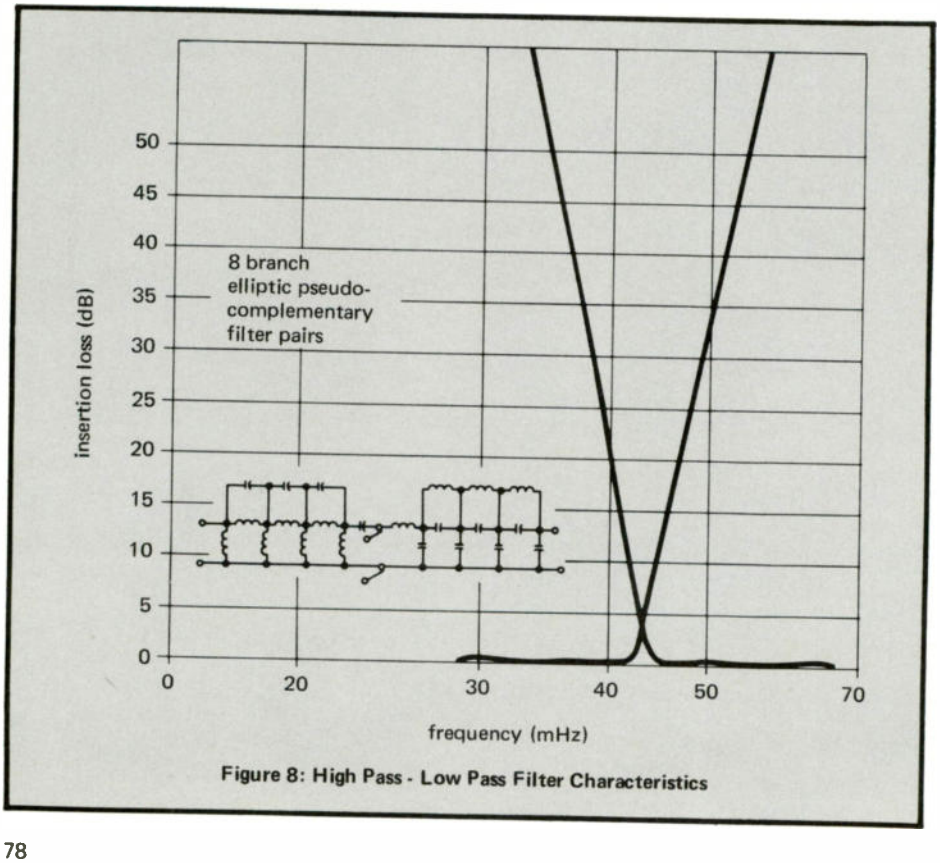


Figure 8: High Pass - Low Pass Filter Characteristics

The insertion loss characteristics of the complementary pair of diplex filters used in trunkline equipments are illustrated in Figure 8. The design calls for filters utilizing 8 branches in each one of the pair. (Note: two pair are required in each FDM housing.) Passband ripple is held at 0.01 dB and the minimum insertion loss in the stop band is in excess of 50 dB. (e.g., at points in the stop bands insertion loss reduces to the minimum and returns to a maximum; however, these points are not illustrated).

The group delay characteristic of the low-pass section is illustrated in Figure 9 (the high pass section is complementary). Of major importance on this graph is that the envelope delay distortion is shown to be 1.7 nanoseconds over the sub-channel passband from 29 MHz to 35 MHz, and this is "worsecase."

From these two graphs then, it

can be approximated that for a cascade of 100 filters (50 amplifiers) the total passband ripple introduced by the filters would be 1.0 dB and the total envelope delay distortion, 170 nanoseconds (not enough to cause color misregistration).

Design Criteria For Two-Way Amplifiers

The scope of this article does not permit a detailed discussion into all aspects of amplifier design; therefore, this area will be covered only briefly as background for a discussion of system design. The important specifications for typical Vikoa trunkline equipment and the sub-channel amplifier used in the mainline FDM housing are shown in Table I. Note that the amplifiers are completely push-pull to negate the effects of second order beats, not only in the VHF region but also in the sub-channel as well. This feature will be of great importance if the sub-channel frequencies are to be used for data transmission and full utilization of the available 30 MHz spectrum is to be made.

In addition to these specifications, it should be pointed out that the sub-channel amplifier

Table I: Typical Amplifier Characteristics

VHF AMPLIFIER SPECIFICATIONS	
circuitry:	all push-pull
frequency range:	54 mHz - 225 mHz
noise figure:	10 dB maximum
distortion characteristics:	
@35 dBmv output level 21 channels synchronous modulation (NCTA)	cross-modulation -87 dB
	second order beats -75 dB
gain:	
minimum full gain	26 dB
continuously variable range	6 dB
continuously variable tilt range	6 dB cable @ ch 13
SUB-CHANNEL AMPLIFIER SPECIFICATIONS	
circuitry:	all push-pull
frequency range:	5 mHz - 35 mHz
noise figure:	8 dB maximum
distortion characteristics:	
@37 dBmv output level 5 channels synchronous modulation (NCTA)	cross-modulation -90 dB
	second order beats -77 dB
gain:	
maximum full gain	24 dB
continuously variable range	7 dB
continuously variable filt range	6 dB cable @ SC5 *

*SC5: Sub-Channel Frequency 5 (29mHz - 35 mHz)

utilizes a composite carrier tilted AGC scheme.

System Design Considerations

No attempt will be made here to establish or discuss acceptable system performance standards for a CATV system since this has been treated quite thoroughly in other literature. ** It will only be stated that the design of bi-directional equipment must not allow degradation of system performance below these standards.

The following considerations proceed on the assumption that the equipment design is adequate from the point of view of: (1) temperature variations and AGC stability, (2) corrosion, (3) moisture, (4) satisfactory mechanical design, (5) adequate shielding of RF interference, and (6) satisfactory input and output impedance matching.

There remains the question of the effects of the bi-directional equipment on system criteria such as signal/noise ratio and cross-modulation. Figure 10 illustrates a cascadability chart for the trunk line equipment specified in the tables. Superimposed on the chart are lines representing the output level at -57 dB cross-modulation, and the input levels at 44 dB signal/noise ratio, of the VHF and sub-channel amplifiers.

The specific operating levels are chosen not from the point of view of optimum cascadability of each set of amplifiers individually, but rather from a compromise which will allow reasonable levels in both transmission directions. The operating levels which have been chosen are as follows:

VHF amplifiers: output level @ Ch 13 - +33 dBmv

input level @ Ch 13- +13 dBmv

sub-channel amplifiers: output level @ SC5 - +27 dBmv

input level @ SC5 - +10 dBmv

Based on these levels and assuming a cascade of 50 VHF amplifiers in the prime direction and 25 sub-channel amps in the return direction, the combined system yields:

signal/noise ratio . . . . . 42.2 dB

cross modulation . . . . . -56.3 dB

The combination of the individual cascades is a "real case" situation if it is assumed that signals are inserted into the end of the system at sub-channel frequencies, transmitted back to the head-end, converted and retransmitted out over the system at VHF in the prime direction.

This analysis, of course, does not take into account noise and distortion introduced by the sub-channel modulator and the head-end convertor. However, it should be quite clear that the equipment specifications are adequate to yield reasonable performance when combined as a bi-directional system.

In order to illustrate further the practicality of bi-directional design, Figure 11 shows the layout of a section of trunkline with levels set as in the example above, plus the addition of a feeder arm. The feeder arm consists of a bridger located within the trunkline housing (e.g., "Total Concept" amplifier) plus two VHF line extenders in cascade.

Typical levels in both directions are shown throughout the feeder arm including those at a 11 dB directional tap. This tap is located, for the purposes of this example,

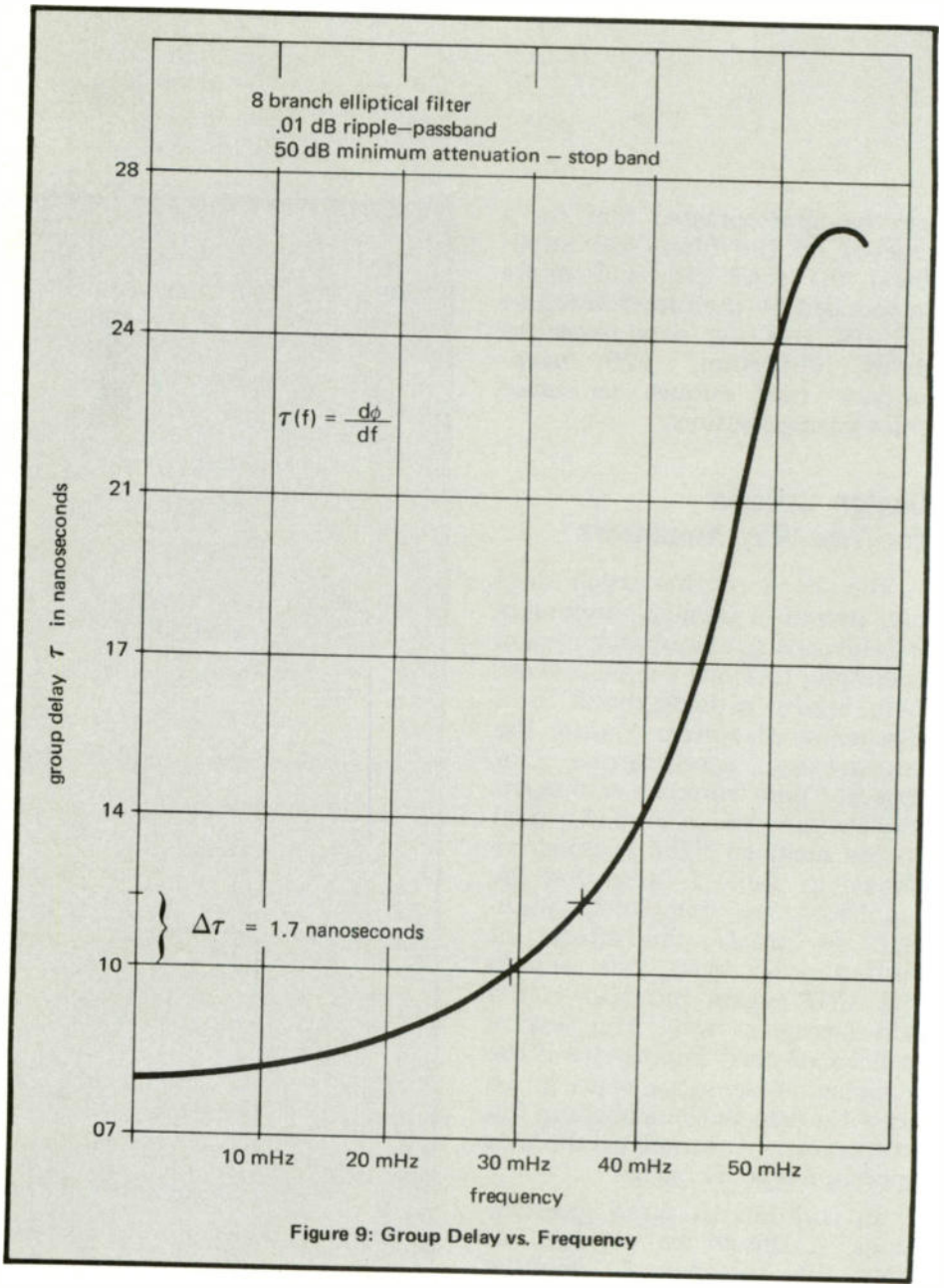


Figure 9: Group Delay vs. Frequency

Why CSC?

Communications Systems Corporation is a truly independent CATV contractor. With no loyalty to any particular supplifer of equipment, cable or hardware, he can recommend or specify the best equipment for your system on an objective basis. He can select amplifiers that will provide long-term performance, cable that meets and maintains specifications. With no axe to grind, he can be your best source of honest, unbiased guidance.

Communication Systems Corporation, with eight years of experience in CATV construction, can build your system to the highest standards in the industry.

Professional system design and engineering services include headend surveys, strand mapping and pole line negotiation assistance. Experienced construction crews follow through with plant installation that assures profitable long-term operation.

When you build, let Communication Systems Corporation turn worry into workmanship, and potential into profits.

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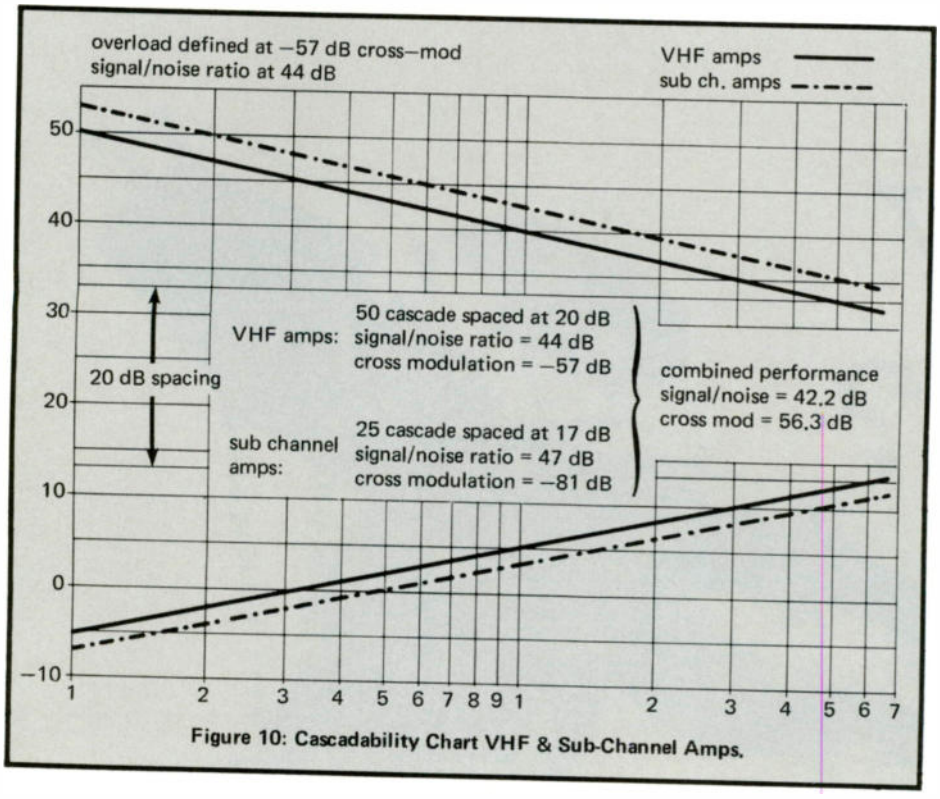


Figure 10: Cascadability Chart VHF & Sub-Channel Amps.

at the end of the feeder leg and it is assumed that it is also used as the sub-channel insertion point. Thus, at this point, a received VHF signal level of +13 dBmv exists while the sub-channel modulator is assumed to have an output of +50 dBmv. It is also assumed that the feeder cables between line extender amplifiers are loaded with "broad-band" directionals that present "flat" insertion losses throughout the entire spectrum of frequencies between 5 MHz and 225 MHz.

Note that the line extenders are bypassed by "Piggy-Back" FDM housings and that only the first extender location requires a sub-channel amplifier. Another interesting fact is that, due to the superior performance specifications of the sub-channel amplifier, it is possible to take great liberties

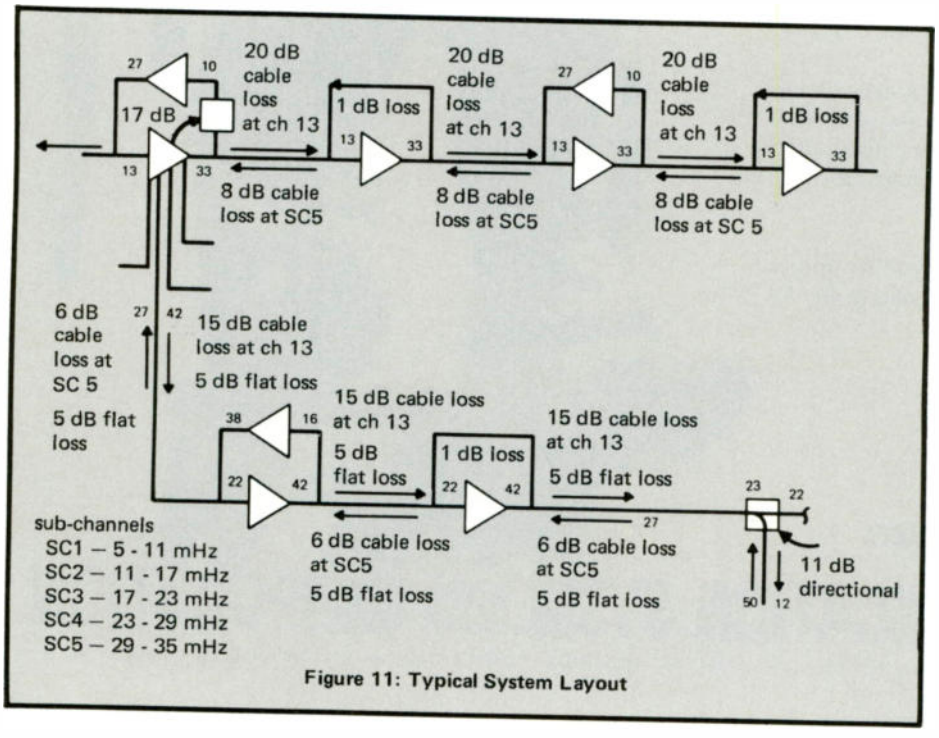


Figure 11: Typical System Layout

in setting their operating levels (e.g., +37 dBmv and +17 dBmv). If it is assumed that the VHF portion of the system has been designed for acceptable specifications, it can readily be concluded that the addition of the bi-directional equipment in the feeder arm in no way degrades the total system performance.

It is all "well-and-good" to theorize on how a bi-directional system will perform based on "paper" designs or even on simulated system tests in the laboratory. However, it is necessary to actually convert and operate an existing system, in order to gain the necessary experience in the operational problems associated with: (1) conversion of an existing cable plant to a bi-directional system, (2) system measurements on a bi-directional plant, (3) introduction and marketing of the additional services mentioned earlier, and (4) establishment of acceptable additional revenues.

For this purpose, Vikoa has chosen and will take the initial steps in Peekskill, New York. This system is owned and operated by Continental CATV of New York, a fully owned subsidiary of Vikoa, Inc. The system, as it presently stands, consists of approximately 70 miles of plant and has approximately 2,000 paying subscribers connected. It is, to date, providing 12 channels including one weather channel. However, there are a total of 19 channels available at the head-end which can be put on the system.

Figure 12 illustrates the layout of the first sections of trunkline. The purpose of this phase is to establish at least four key insertion points on the system, e.g., the high school, the community center, city hall, and the principal shopping center. Initially, tests will be restricted to system performance only, and after these are satisfactorily completed, the insertion points will be utilized for local programming.

Although Peekskill is a complete 21 channel system, none of the mid-band frequencies have been made available to subscribers; therefore, the next phase will consist of extending the bi-

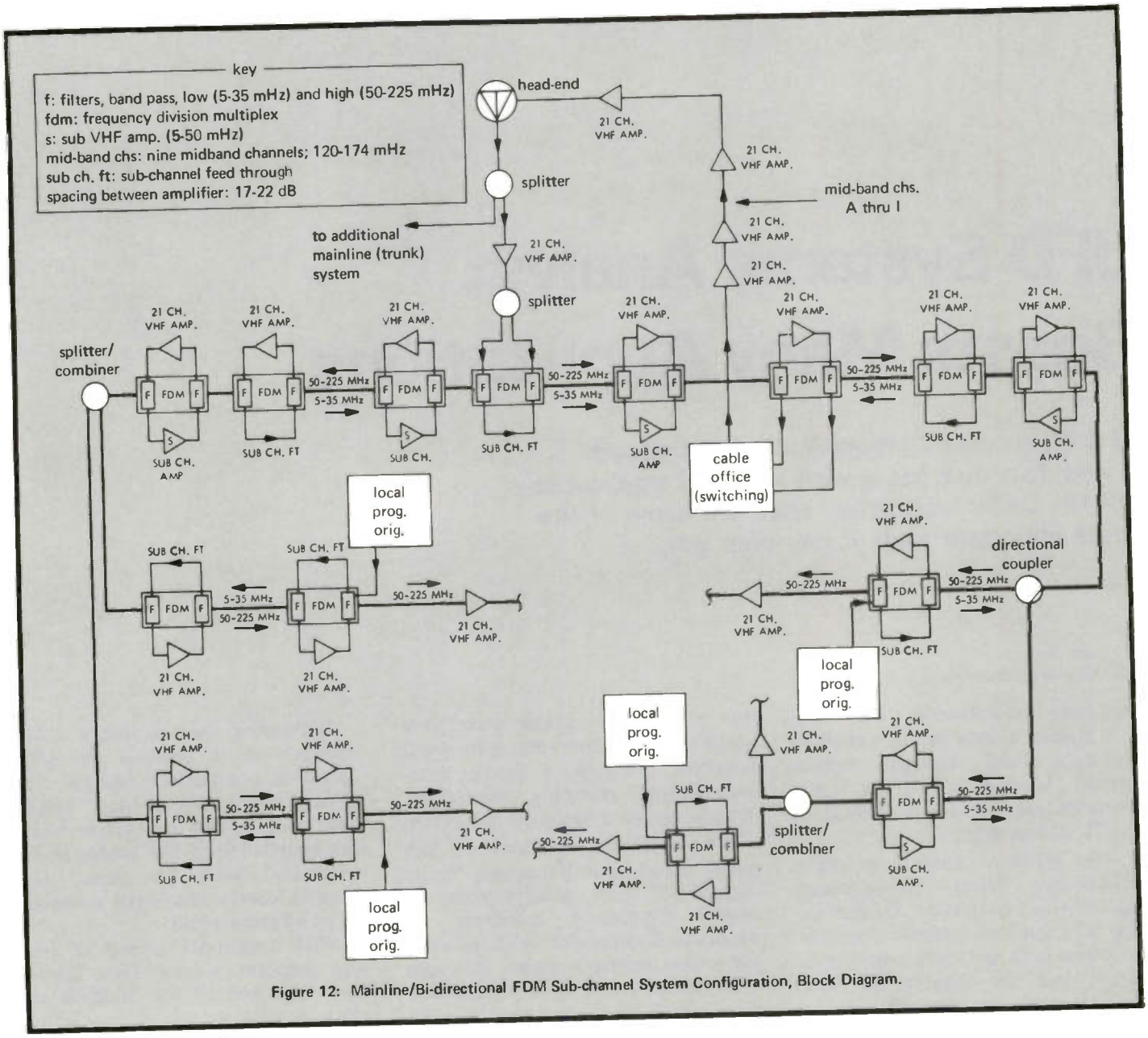


Figure 12: Mainline/Bi-directional FDM Sub-channel System Configuration, Block Diagram.

directional equipment into the distribution legs and experimenting with complete two-way communications by means of the mid-band channels and special convertors. In this manner, a great deal of experimentation can take place without the subscribers being aware of it.

Later on the convertors will be installed in the homes of subscribers to whom the added services will be offered on a trial basis. It is hoped that in this manner customer reaction can be evaluated, in particular, their reaction to the proposed rates for the services being demonstrated. goal of these experiments to convert Peekskill to a RADA cable system (random access discrete address) allowing complete bi-directional communication from any two points on the system.

Bi-directional transmission can greatly facilitate the expansion of CATV systems into newer services. It can also permit program origination at points in the system, other than that of the head-end; thereby, allowing for greater flexibility in origination of available channels in new extended bandwidth amplifiers.

The most optimum means of achieving the bi-directional system must consider both the economic and technical factors associated with the implementation of such a system. It is safe to state that superior technical performance can be achieved with moderate additions to existing systems, using the FDM technique. It is hoped that the Peekskill Experiment will prove this to be true and give us some insight into the New Era of CATV. TVC

REFERENCES

*"Transmission and Reflection Group Delay of Butterworth, Chebychev and Elliptic Filters" – C.M. Kudsia and N.K.M. Chitre, RCA Victor Company, Limited; Montreal, Canada.

**CATV Transmission System Design for Reliable Year-Round Operation, Orville D. Page, I.E.E.E. Transactions On Broadcasting, December, 1969.

JFD Systems Analyst Boasts Many Applications

JFD Electronics Corporation has developed a new tool that has a wide range of applications for the CATV technician. Here are some of the more important ways it can help you.

By Lon Cantor
Lon Cantor Associates

Newly introduced, the JFD Systems Analyst is useful to calibrate field strength meters, locate system troubles, and measure gain, loss and VSWR of CATV components.

The System Analyst is quite different from conventional CATV test equipment. Of course, the jobs that an analyst does can be done with ordinary test equipment, but the Analyst is often faster, more convenient and/or less expensive. It is extremely versatile.

The JFD Analyst can best be compared with an ordinary field strength calibrator. However, field strength calibrators put out only a single frequency whereas the Analyst generates the entire frequency spectrum, 50 to 260 MHz, simultaneously.

A sweep generator is a "tuned" source which feeds a broad-band detector. The tuned source is "swept" electronically across the desired range of frequencies. The noise source technique uses a broad-band signal (white noise) feeding a tuned detector (field strength meter) which can be tuned across its range to get the whole story.

The output of a sweep generator is generally taken through a swticher and observed on an oscilloscope. This is a fairly time-consuming, complex procedure, which can be done only in the lab.

The Systems Analyst, on the other hand, simultaneously emits signals of even density over its entire frequency spectrum. It works in conjunction with an ordinary field strength meter. The user gets results from the FSM directly in decibels, reducing the chances of read-out errors.

The heart of the Analyst is a special white noise generator, which provides a continuous signal from 50 to 260 MHz. This signal is flat within plus or minus 1 dB throughout the VHF/FM spectrum.

In addition, the Analyst utilizes a crystal controlled narrow-band signal generator. This generator puts out a 73.5 MHz reference signal, accurate within plus or minus 0.5 dB. The amplitude of the reference signal is adjustable and accurately monitored on a built-in panel meter.

By comparing wide-band generator readings with those of the accurately controlled reference signal, the CATV technician can get very accurate results.

Increasing the versatility of the Analyst is a built-in 75 ohm balanced comparison bridge. Any device connected to the "return loss" jack of the Analyst becomes the fourth leg of the bridge and is compared with 75 ohms. This gives a direct, accurate measurement of return loss.

With this background of how the Analyst works, let's take a look at some of the things it can do in a system.

Calibrating The Field Strength Meter

This is one of the basic uses of the Systems Analyst. Using conventional test equipment, calibrating a field strength meter is a time consuming job (See I. Switzer's article, page 84, January 1970 *TV Communications*). With the Systems Analyst, the technician can do the job accurately in less than a minute. This means that the calibration of meters can be checked every time they are taken out into the field.

Here's how it's done. (It sounds complicated, but each of these steps is fast and easy once the technician is familiar with the Analyst.)

1. Connect the Analyst to the FSM. With the meter switches in the "normal" and "narrow" positions, adjust the narrow-band output level control for a 1 mv reading on the panel meter. The Analyst is now putting out an accurate 1 mv signal at exactly 73.5 MHz.

2. Tune your FSM to 73.5 MHz. It should read exactly 1 mv (0dBmv). Any deviation is an inaccuracy in the meter.

3. Switch the Analyst to the wide-band position and adjust the level control so that you get exactly the same reading as in Step 2. Then, tune the FSM over its entire VHF/FM range. This can be done quickly without stopping to take readings for each sound and picture carrier. Just watch the FSM for swings, and note any large deviations.

The first time an FSM is calibrated it is a good idea to make a correction chart. Paste this chart on the inside of the FSM cover and add or subtract dB where indicated.

For subsequent calibrations, however, it is not necessary to change the chart unless the FSM is quite a bit off. A quick swing through the FSM tuning range will usually show that the correction chart is accurate plus or minus 0.5 dB, and this is about as good an accuracy as you can hope to achieve no matter how hard you try.

In fact, most experienced CATV technicians don't even bother with a correction chart unless deviations are quite large.

Measuring Gain, Loss and Response

The Analyst is an excellent tool for checking the response and gain of any active or passive component in a cable system. Before installing a trunkline amplifier, distribution amplifier, line extender, splitter or tapoff, it's a good idea to make sure it is performing according to manufacturer's specifications.

Simply connect the device under test between the Analyst and the FSM, as shown in Figure 1.

Compare the readings on the FSM with 1 mv (which is what the meter would read with no device between it and the Analyst). The difference between the FSM readings and 1 mv is the gain or loss of the device under test. Read this difference directly in dB, reducing the chance for human error.

To check the response of the device, simply swing the FSM through its tuning range and note any large swings of the needle. This method can also be used as a method of adjusting gain and tilt controls. Of course, a technician can check response, and adjust gain and tilt more rapidly with a sweep generator and an oscilloscope. But since the Analyst is portable, it can be used to set up equipment in the field.

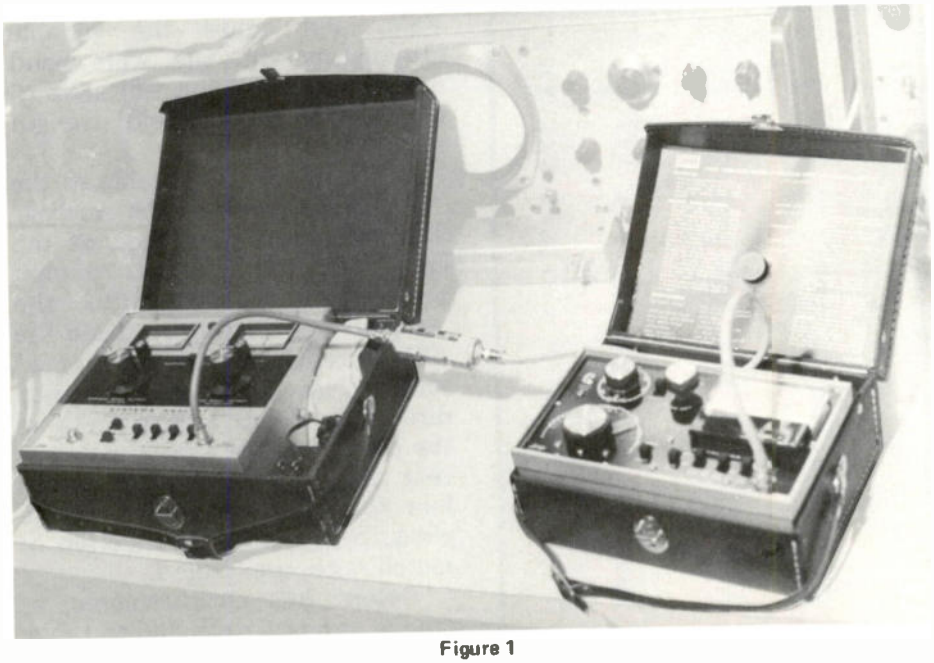


Figure 1

Pre-Installation Cable Testing

It is a common practice in the CATV industry to check out every reel of cable before it is installed. The Analyst simplifies this job and gives more data than conventional methods. It gives an accurate measurement of cable loss at all frequencies, plus VSWR.

To measure cable loss and response, simply connect the reel of cable between the Analyst and FSM.

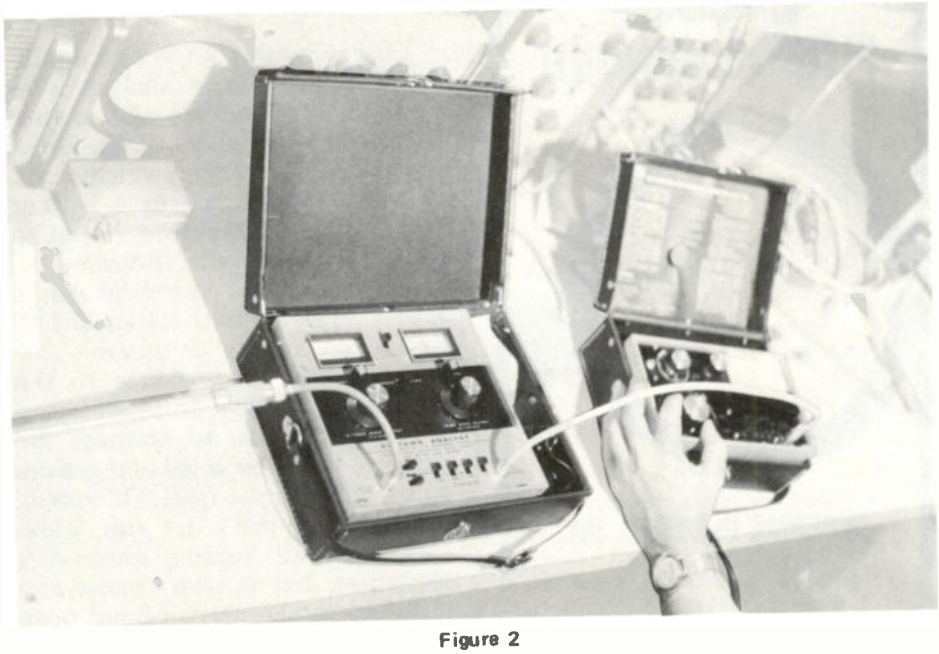


Figure 2

Table I: Return Loss, VSWR Chart

return loss	VSWR	reflection coefficient	percentage reflection	match ratio
2 dB	8.71	.79	79%	1.26 :1
4 dB	4.42	.63	63%	1.59 :1
6 dB	3.01	.50	50%	1.99 :1
8 dB	2.32	.40	40%	2.51 :1
10 dB	1.92	.32	32%	3.16 :1
12 dB	1.67	.25	25%	3.98 :1
14 dB	1.50	.20	20%	5.01 :1
16 dB	1.37	.16	16%	6.31 :1
18 dB	1.28	.13	13%	7.94 :1
20 dB	1.22	.10	10%	10.0 :1
22 dB	1.17	.079	7.9%	12.6 :1
24 dB	1.13	.063	6.3%	15.9 :1
26 dB	1.11	.050	5.0%	19.9 :1
28 dB	1.08	.040	4.0%	25.1 :1
30 dB	1.07	.032	3.2%	31.6 :1
32 dB	1.05	.025	2.5%	39.8 :1
34 dB	1.04	.020	2.0%	50.1 :1
36 dB	1.032	.016	1.6%	63.1 :1
38 dB	1.026	.013	1.3%	79.4 :1
40 dB	1.020	.010	1.0%	100 :1
46 dB	1.010	.005	0.5%	199 :1
50 dB	1.006	.003	0.3%	316 :1
54 dB	1.004	.002	0.2%	501 :1
60 dB	1.002	.001	0.1%	1000 :1

The difference between the FSM readings and 1 mv is the loss of the cable. Tune the FSM to 260 MHz (the top of the range) and read loss in dB. Then, tune the FSM through its entire range. Any sudden dips in the meter reading indicate "suck-outs" or discontinuities at the frequencies at which they occur.

To measure the return loss of the cable, switch the Analyst to the "return loss" position, connect the Analyst directly to the FSM, and adjust the variable attenuators and the wide band output control for a full scale (0 dB) reading on the field strength meter.

Then, connect the cable to the "return loss" jack of the Analyst. Terminate the other end of the cable with the accurate 75 ohm terminator supplied with the Analyst (see Figure 2). Tune the FSM through its range and read return loss at each frequency directly in dB. Any sharp peaks on the meter indicate a poor match at that frequency. To convert return loss to VSWR, reflection coefficient, percentage of reflection or match ratio, use Table I.

Return loss measurements, of course, are not restricted to cable. Measure the return loss of any device simply by connecting it to the return loss jack. The worse possible match, with nothing connected to the jack, will read 0 dB. A good 75 ohm terminator connected to the jack will give you a better than -30 dB reading. The devices normally tested will fall somewhere between.

Return loss measurements, which are quite difficult with conventional test equipment, are quite significant. For example, poor match in connectors, splitters and tapoffs can cause many troubles that are hard to track down or diagnose.

Troubleshooting With the Analyst

Unlike most CATV test equipment, the Systems Analyst is as portable as a field strength meter. It operates from a rechargeable cadmium battery, weighs six pounds, and comes in a leather carrying case. Therefore, it can be taken up on the pole, if desired.

When trouble develops in a CATV system, it is important to find it as rapidly as possible . . . with as little disturbance to the system as possible. In many cases, it's a good idea to connect the Analyst into the head-end before going out into the field. Of course, the Analyst can't be run wide-band without ruining everyone's reception, but it won't cause any problem in the narrow-band position.

With the Analyst connected, the technician will have a reference signal of known amplitude (1 mv) and frequency (73.5 MHz) to start with. This signal can be tracked through the system with a field strength meter.

One word of caution: Some systems use 73.5 MHz pilot carriers. In these systems, the Analyst can't be connected into the system without interfering with the pilot carrier.

For really tricky problems, it's a good idea to carry the Analyst in the field. Suppose, for example, that the system mysteriously develops problems on channel 4 — only on cold nights.

This type of trouble might well be caused by a suckout that normally sits between channels 4 and 5, but moves into channel 4 when it's cold.

Tracking down this trouble would be easy with the Analyst. Check out all components in the problem branch until you see a suckout, as indicated by a wide swing of the FSM reading. Using the standard divide and conquer method of isolating the defective cable, splice or component, the technician could pin-point the trouble easily and correct it before the next cold night.

Some of the most difficult CATV problems are caused by poor match developing in connectors or parts at given frequencies. These poor matches have little effect on signal strength, but usually cause ghosts, especially on color TV. Using the Analyst, match problems can be spotted, while problem parts and frequencies are identified as a matter of routine.

The Analyst can also be used to excellent advantage with a spectrum analyzer. Using these two instruments together, a continuous signal is displayed on the scope, giving an accurate picture of the response of the device under test.

This article can only suggest the range of applications for the Systems Analyst. As CATV technicians use it in the field, they will undoubtedly develop new techniques for utilizing the unusual capabilities of this new type of test equipment. TVC

WE ARE NOW SHIPPING A GREATLY IMPROVED MODEL OF THIS POPULAR FILTER. MATCH (RL) IS 6 DB HIGHER, INSERTION LOSS IS LESS THAN HALF, AND RESPONSE IS ALMOST COMPLETELY INDEPENDENT OF LOAD. YOU CAN CASCADE UP TO THREE CHANNEL 2 FILTERS, FOR EXAMPLE, WITH LESS THAN 1 DB INSERTION LOSS.

QUESTIONS MOST FREQUENTLY ASKED ABOUT HAMLIN BAND PASS FILTERS...

1. Q. **Why the sudden interest in Band Pass Filters?**
   A. Cost. They used to cost about $75.00. This meant $1800.00 to clean up a 12 Channel Head End. Now they are $12.00 and it costs only $288.00 to put them at input and output.
2. Q. **Where are they necessary?**
   A. Primarily at Head End Signal Processors, at both input and output.
3. Q. **Why at outputs?**
   A. To eliminate "leakage" of 45.75 IF and local channel oscillators.
4. Q. **How can 45.75 harm the pictures?**
   A. Because of loose "tolerances".
5. Q. **How does that affect the matter?**
   A. Plus or minus 100 KC means up to twelve different "45.75's", varying from 45.65 to 45.85.
6. Q. **So what?**
   A. They "beat".
7. Q. **Then what?**
   A. Their "beats" then modulate desired carriers".
8. Q. **Then what?**
   A. A TV Receiver detects them and they appear as "wormy pictures" or "busy backgrounds".....or just plain noise.

   Only $144.00 per set of 12 channels, 2 thru 13. Less than 12 $15.00 each.
9. Q. **Back to the Head End...how do they beat without a Detector?**
   A. They don't.
10. Q. **Where is the detector?**
    A. Every non-linearity from Head End "Mixing" to cascaded amplifier.
11. Q. **What's a typical example?**
    A. Signal Processor outputs. They have steep slopes at 45.75 to minimize leakage. When interconnected to other Processors they make near perfect "slope detectors" for 45.75 MC "beats".
12. Q. **What else?**
    A. Broad Band Amplifiers. They also have steep slopes at 45.75.
13. Q. **Why are the "wormy pictures" worse after cascading amplifiers?**
    A. Because you cascade "slope" detectors.
14. Q. **Will Hamlin B.P.F.'s at $12.00 actually cure this?**
    A. Yes, unconditionally.
15. Q. **Have you sold many?**
    A. More than 8,000.
16. Q. **Is that a lot?**
    A. Probably more than sold by the whole Industry since 1949.
17. Q. **And what did you say the price is?**
    A. Only $144.00 per set of 12 channels, 2 thru 13. Less than 12 $15.00 each.

For additional information or specifications on Hamlin MINIFILTERS, wire, write, or phone today.

Hamlin
INTERNATIONAL CORPORATION

126-B S.W. 153rd St. / Seattle, Wash. 98166 / (206) 246-9330

A Technique For Testing

By Robert D. Bilodeau
CATV Engineering Consultant

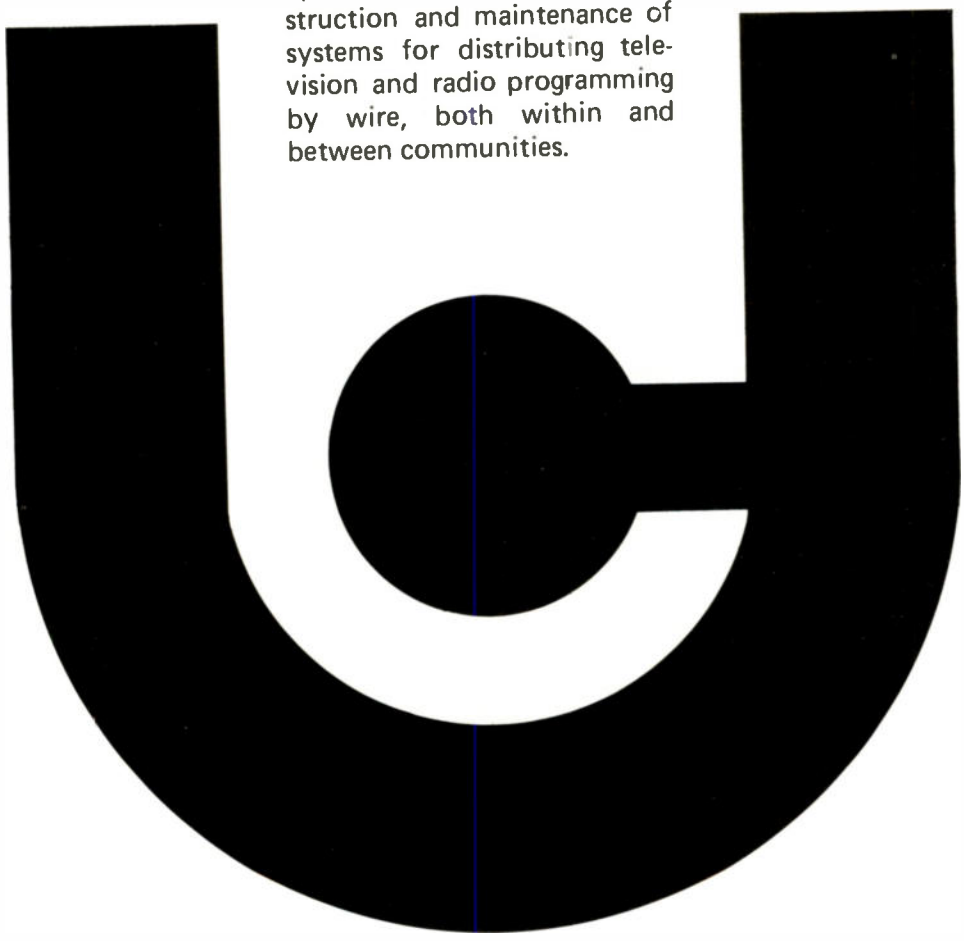
There are many tests that can be satisfactorily performed without sophisticated equipment. The following is an example. In high RF ambient areas, a simple and reasonably accurate method to measure the ratio of a ghost (that is caused by direct pick-up by a TV receiver connected to a cable system) is through the use of a variable RF attenuator.

Connect the attenuator on the 75Ω side of the subscriber drop with zero padding. Observe the picture (with ghost) while adding pads to attenuator. The ratio is the attenuator reading at the point where the TV set is confused about which input signal to sync on. For small displacements, perception of the picture shift is more difficult. However, this is the typical case for CATV, and small displacement ghosts can be tolerated at much higher levels.

Conditions, of course, must remain equivalent for before and after, i.e. TV set location, steady cable input levels, steady path conditions for direct pick-up input, etc.

This technique can be useful in optimizing TV receiver location within the room and in comparing the "shielding" value of different brands of matching transformers.

For transformer comparisons check across the band of interest and repeat the test with the 300Ω polarity in both modes.



Specialists in the design, construction and maintenance of systems for distributing television and radio programming by wire, both within and between communities.

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PRODUCT REVIEW

NEW COMPONENTS FOR CABLE TELEVISION SYSTEMS

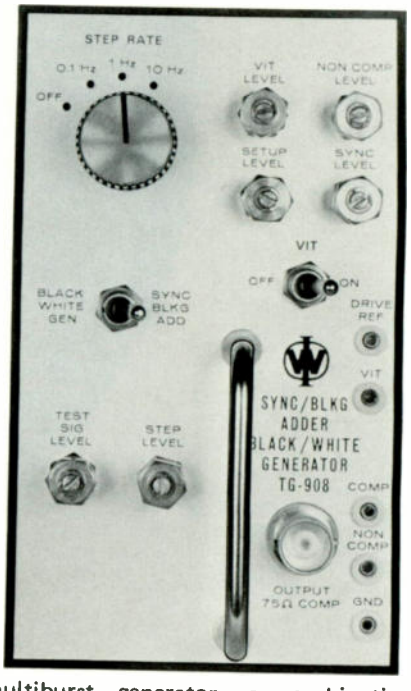
CIRCUIT TRANSISTOR CURVE TRACER IS NEW

Jud Williams, Box 335, Long Valley, N.J. 07853, test instrument manufacturer, has announced development of a new type of dynamic transistor curve tracer. The Model A Curve Tracer is designed to dynamically test transistors both in circuit and out of circuit. A newly discovered technique allows a technician to use the curve tracer to trouble shoot any type of transistorized circuit regardless of impedance or type of circuit being tested. The curve tracer is used with a monitor oscilloscope to display the patterns which are developed when a circuit under test is checked with a special probe which comes with the instrument. The curve tracer produces two signals, a 120Hz pulsating DC voltage variable from 0-80 volts, which appears across the collector to emitter of the transistor under test

and a synchronous staircase generator which applies six steps of current to the base of the transistor. This current is variable from 10uA/step to 1mA/step in a 1-2-5 sequence. The two signals act to "turn on" the transistor under test, the results of which are displayed on the oscilloscope monitor as a family of curves. An open transistor appears as a single horizontal line while a shorted transistor appears as a single vertical line. This technique for testing transistors in circuit is performed without endangering the transistor under test. Inadvertant lead reversal merely results in a false reading without damage to the transistor or its circuitry. Price is $120.

TV TEST EQUIPMENT FROM WARD ELECTRONICS

A new line of rack mounted TV test modules has been developed by Ward Electronics, 142 Central Ave., Clark, N.J. The line comprises five units: a pulse bar and ramp signal generator; a linearity – variable APL generator; a



multiburst generator, a combination sync/blanking adder and black/white generator; and a bar and dot generator. Each test generator is self powered, completely independent, and can be used with or without other generators. All units in the new series can be driven internally or by external sync. The new test modules can be run off of composite video. This feature makes them ideal for transmitter sites, at which sync generators are often not available. Each of the new test generators provides three composite outputs, plus a vertical interval output – all of which can be used simultaneously.

FREED NOW OFFERING RESISTANCE TEST DEVICE

Freed Transformer Company, Inc., 1718 Weirfield Street, Brooklyn, New

COHU ELECTRONICS, INC

used these numbers to choose

TV Communications

the best cable television advertising medium!

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

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

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

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

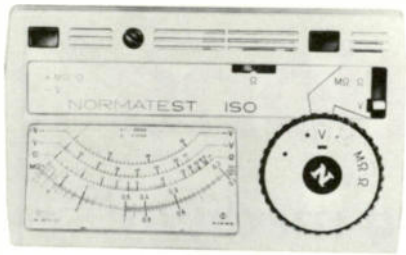
If you're going to use numbers to select your CATV advertising medium media— use numbers that mean something.

TV Communications

1900 West Yale Englewood, Colorado 80110 (303) 761-3770

Copies of Cohu report available on request.

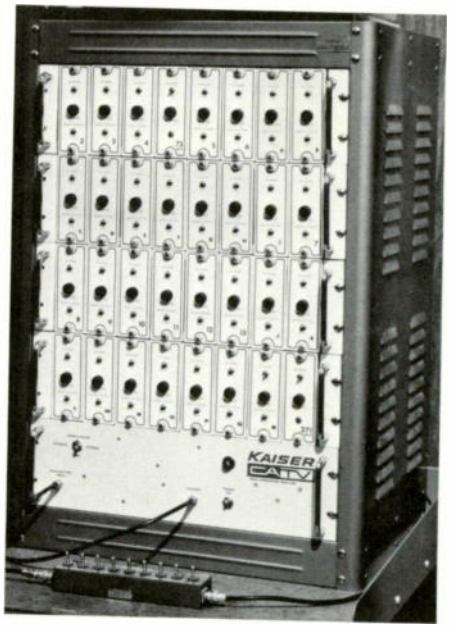
York 11227, under an agreement with Norma Instruments of Vienna, Austria, is offering the new Norma-test Iso for measuring insulation under a variety of



conditions. The Type 1811-50303 Iso is a lightweight versatile unit which provides accurate insulation resistance testing of motors, wiring circuits, capacitors, transformers, and all associated electrical/electronic equipment. The Iso is a multi-purpose instrument which not only provides insulation resistance measurement at two test voltages, but also enables the measurement of low resistances, up to 150 ohms, for line and continuity testing, as well as the measurement of D.C. up to 300 volts and A.C. up to 600 volts. The unit measures 6" x 4" x 1½" and weighs 2 lbs. The price, including carrying case and test leads, is $145.00.

CROSS-MOD ANALYZER INTRODUCED BY KAISER

Kaiser CATV, P.O. Box 9728, Phoenix, Arizona, has introduced a cross-modulation analyzer which provides modulated or unmodulated signals for testing on up to 32 channels. Such characteristics as cross modulation, second order distortion products, signal-to-noise radio and hum modulation can be measured by the analyzer in its various modes of operation. The model KTSS-NCTA cross-modulation analyzer consists of a main frame containing an internal modulation oscillator, external modulation signal processor and AC power distribution. To the main frame are added module frames as required for the number of channels desired, up to a maximum of 32 channels. Each module frame accepts up to eight plug-in RF channel generators, and provides the necessary power, modulation signal and RF



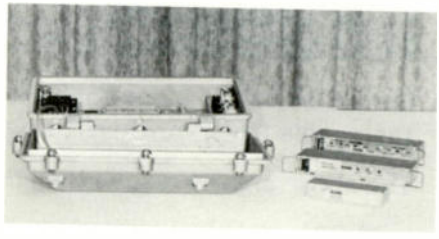
combining for the modules. The RF modules are crystal controlled and may be individually operated in an "off," "CW," or "square wave modulated" mode. The modules and the combining technique employed are designed to yield a high degree of isolation and freedom from spurious outputs.

NEW UNIT MULTIPLIES LOW FREQUENCY SIGNALS

Hewlett-Packard, 1501 Page Mill Road, Palo Alto, California, notes that multiplying a low frequency signal and applying the multiplied frequency to a conventional counter improves measurement resolution, or for a given resolution, gate time can be decreased by the multiplying factor. A new, low-cost instrument, the Hewlett-Packard Model 4022A Frequency Multiplier, multiples input signal frequencies by 10, 100 or 1000. It works for CW or pulses at frequencies from 5Hz to 100 kHz. It gives high resolution in measuring, which requires calculation of the reciprocal to obtain frequency. With the Model 4022A, users with conventional counters get the higher resolution of a reciprocal counter. When measuring a 60 Hz signal over a 1 second gate time, a conventional counter will read 60 plus or minus 1 count. Multiplying the frequency by 1000 with the Model 4022A, the counter reading becomes 60.000 plus or minus 2 counts for the same 1 second gate time. Likewise, measurement time can be reduced to 1 millisecond and a reading of 60 plus or minus 1 count can be obtained in 1/1000 the previous gate time. The Multiplier is priced at $760.

SYLVANIA MARKETS BROADBAND EQUIPMENT

Sylvania Electric Products Inc. (70 Empire Drive, West Seneca, N.Y. 14224) has announced their entry into main line CATV products with a full line of broadband equipment for cable television. Sylvania is a subsidiary of General Telephone & Electronics Corporation. Principal products in the

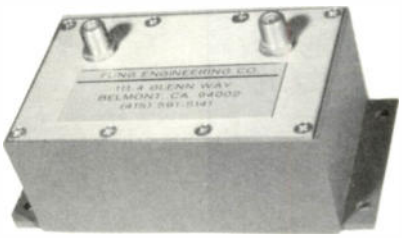


basic line include a fully modular trunk amplifier station available with optional features which provide additional functions; a line extender amplifier with ALC; a directional coupler multi-tap; a power coupler; a splitter, and other complementary devices. The solid-state trunk amplifier station is designed for immediate applications, while providing for additional future services by installation of appropriate plug-in modules. Model 100 trunk amplifier operates over a wide spectrum bandwidth from 50 to 270 megahertz; a total automatic control module (TACM). Model 300 provides automatic level and slope control to compensate for wide systems level variations due to changes in cable and equipment temperature. A bridging amplifier, model 200, is designed for use in conjunction with the trunk amplifier station and any of four different plug-in

splitter modules (model 600 series) to afford from one to four distribution outputs from the trunk. A sub-VHF amplifier, model 1650, which, when it is used with the diplex filter module (model 750) in the trunk amplifier station, provides additional channel carriages in either direction occupying an operating bandwidth from 6 to 30 megahertz. A DC power supply, model 400, is designed to maintain DC current regulation from a 30 to 60 VAC input range.

CHANNEL PASS FILTER FROM FUNG ENGINEERING

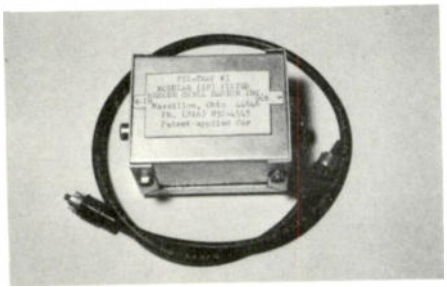
Fung Engineering Co., 111 Glenn Way, Belmont, California 94002, announces availability of the Model CPF channel pass filter. These filters are specially designed for output of the TV modulator or heterodyne processing



unit. The filter has a metallic housing, designed to provide excellent shielding. Typical performance for 6 MHz bandwidth is: insertion loss 3 dB for high band, 2 dB for low band, 18 dB RL. Price: $50.00.

NEW PRODUCT IMPROVES SELECTIVITY OF TV SETS

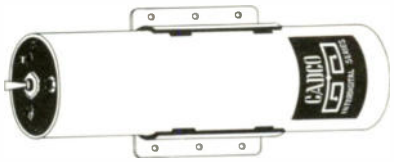
Rescue Cable Design, Inc., 29 City Hall Street, Massillon, Ohio 44646, is a new company formed by the chief engineer of a 200-mile plant system. The firm has come up with a product



designed to solve the problem of poor channel selectivity in CATV subscriber's TV sets. The product, called Fil-Trap, is an intermediate frequency device which is claimed to relieve the receiver's inability to discriminate against unwanted frequencies. The device, pictured here in its early development stage, is currently being used by the cable system in Massillon, Ohio.

THIN-FILM CIRCUITRY FEATURE OF PRE-AMPS

CADCO (Community Antenna Development Company), Suite 107, 4444 Classen Blvd., Oklahoma City, Oklahoma 73118, has announced a line



of six thin-film etched inductance CATV signal processing units for head-end pre-amplification and filtering applications. The Interdigital Series equipment line includes four hybrid bandpass filter/pre-amplifier units for both low-band and high-band with 18, 27 and 40 dB pre-amplifier gain available. The units include built-in thin-film bandpass filters. Interdigital Series units are available for either indoor or outdoor (tower leg) mounting. Indoor models feature built-in zener regulated power supplies and diode input circuits for protection from lightning discharges.

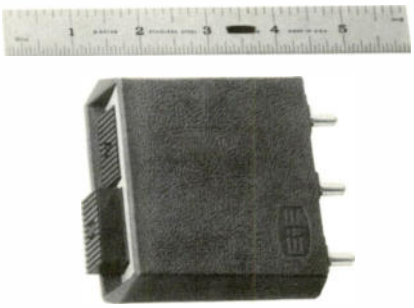
PRUZAN NOW MARKETS Q-E CABLE BLOCKS

Two-way cable blocks manufactured by Q-E Manufacturing Company are now available from Pruzan Company, 1963 First Avenue South, Seattle, Washington, and the Pruzan Servicenter in Los Angeles. Q-E blocks are made with a frame and pulley of aluminum. All

other parts are of cadmium-plated alloy steel. A locking cam of 2"-diameter steel has a lip on its circumference to prevent cable from slipping out of the frame. The patented locking mechanism holds securely as any size cable up to 2¾" in diameter is strung in either direction.

NEW SWITCH FROM EIE FEATURES HIGH ISOLATION

High level of isolation is claimed for A/B coaxial switch from Electronic

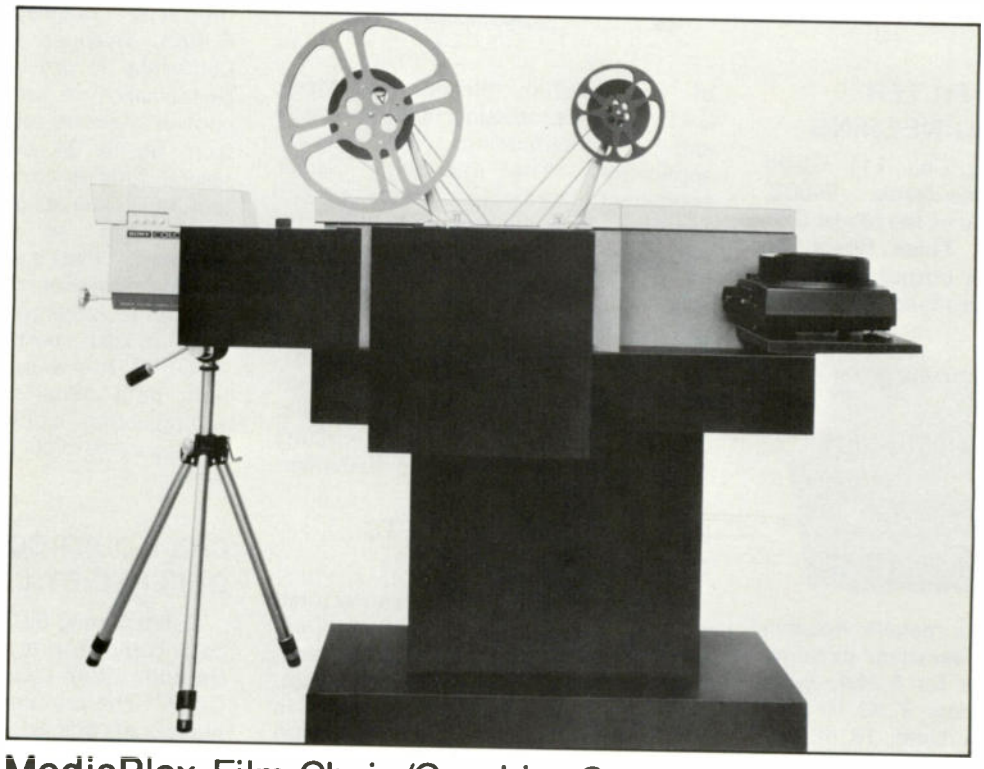


Industrial Engineering, Inc., 7355 Fulton Avenue, North Hollywood, California. It provides "studio level of performance as well as easy fingertip control" for the subscriber, in selecting from up to 24 channels. Detailed in several finishes compatible with manufacturers' cabinets and home decor, the switch can be adhesive or screw mounted. Plastic finish cover also provides isolation from possible shock hazard. It is completely shielded with the unused port terminated. The AB5-300 has a matching transformer built in. Internal switching is positive wiping action. Gold plated contacts add to long range cycle life without degradation.

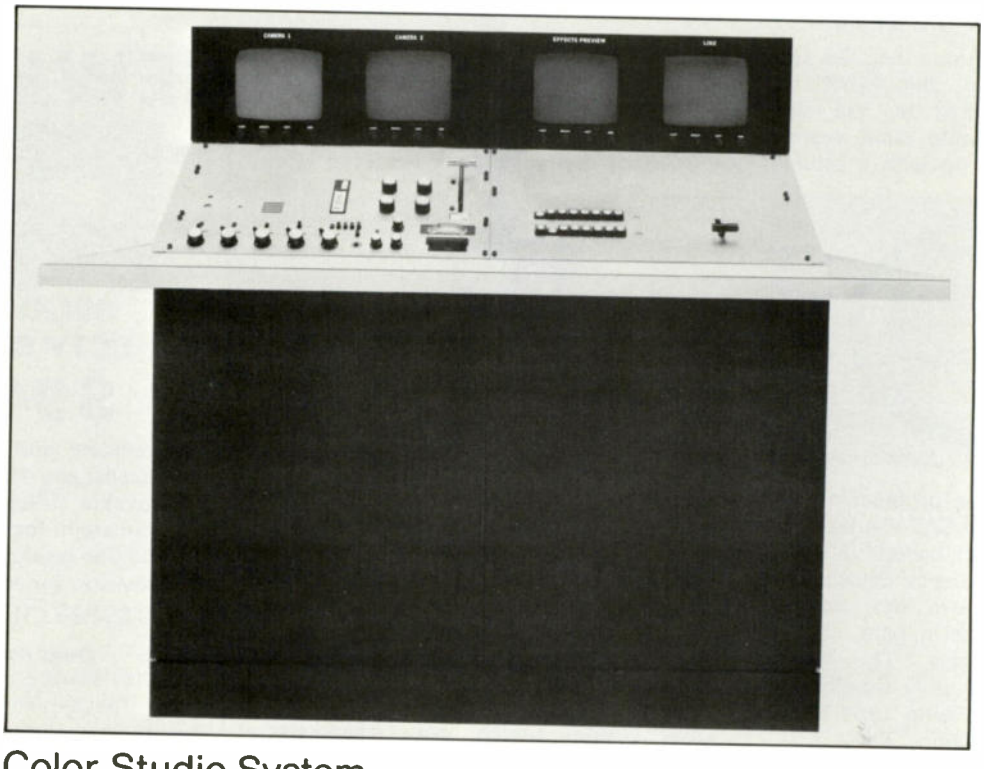
CAB-L-DUCT COLOR CODING OFFERED BY CABOT SYSTEMS

Cabot Piping Systems has introduced color coding for its new line of electrical conduit (Cab-L-Duct) designed for CATV. The product is now available in black, red, orange, light green and dark green. Other colors can be provided upon special request. The product is manufactured from a plastic compound Caboblend 15. It incorporates tubes,

The radical



MediaPlex Film Chain/Graphics System



Color Studio System

departure.

Before we designed a color origination system, we studied cable operations.

We took a different approach. We didn't look at other businesses to determine the needs of cable operators. We studied cable and found that continuing operating costs are a bigger factor than initial equipment investment. So we started from scratch.

We design systems that produce programs day after day with the lowest possible people cost. Lower cost because fewer people are required and they don't have to have an extensive technical background.

For example, our **MediaPlex** Film Chain/Graphics System. Conventional film chains tie up an expensive color camera all the time. Not ours. With the **MediaPlex** you can roll the camera up to the unit or use the same camera for studio work without modification or resetup. That way your color camera investment works double time. And if you should need an extra camera in the studio, you don't have to invest in a spare.

Or take our Color Studio System. It's operable by a person with high school technical background. Color purity and convergence can be accomplished by the same person in less than 15 minutes.

We demonstrate our confidence in our systems by giving a one-year warranty on everything, parts and labor.

Join the growing list of cable operators who are taking the radical departure.

And if you're not quite ready for color, our black and white systems are just as radical.

AV Systems Inc. 44 Railroad Ave. Glen Head, N.Y. 11545
(516) 671-8010

AV systems color

sweep ells and couplings. It is said to have a high impact resistance. The product is available in 1½" and 2" IPS, as well as other common sizes. For further information on this new product contact Cabot Piping Systems, 402 W. Central Avenue, Santa Ana, California 92702, P.O. Box 1032, Louisville, Kentucky 40201.

TIME MANUFACTURING OFFERS NEW AERIAL LIFT

A new aerial bucket lift for medium height insulated safety has been announced by Time Manufacturing Company, 3131 Gholson Road, Waco, Texas 76704. The Versalift V-28 offers a working height of 33 ft. when

mounted on a 1-ton chassis. The unit is fully insulated, has bucket controls, including vehicle start and requires no outriggers for stability. Hydraulic power from PTO pump or auxiliary engine is controlled smoothly by full feathering valves. Numerous safety features normally sold as optional accessories such as rotation torque limiter – rotation drag brake, self leveling bucket and lower boom limit, are supplied as standard equipment on the new economy priced bucket lift.

STAHL TOOL BOX FITS MOST PICK-UPS

A newly designed model 44 tool box for pick-up trucks is now being marketed through distributors by Stahl Metal Products. Engineered to mount

on most pick-up trucks in seconds, the model 44 tool box provides CATV installers and service technicians with an economical, easily installed unit that carries all necessary tools from job to job. Features of the model 44 include sliding steel drawer and two plastic tote trays with 6½ cu. ft. of storage below; two pebble-grain 16-gauge steel tops; electric-welded over-lapping seam construction and white enamel finish inside and out; plus self-locking top arms, weather-proof concealed hinges, and chrome slam-action turn locks. Model 44 is available in three basic sizes which will fit most Ford, GMC, Jeep, Dodge, International and Chevrolet pick-up trucks.

"CLIMBER'S BUDDY" FOR TOWER SAFETY

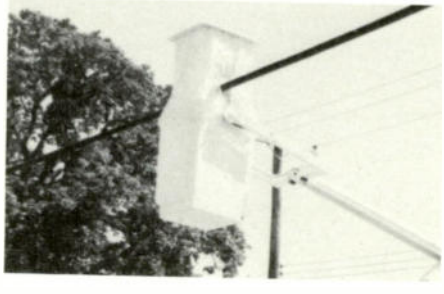
Swager Tower Corporation, offers "Climber's Buddy," a climber's safety system designed by their engineers and riggers for the safety of their employees. Swager indicates "Climber's Buddy" is the only instant grip, rigid rail, safety system available. This aluminum rigid rail system is priced equivalent to others using galvanized steel and lacking the instant-grip feature. For further information on this new product contact Swager Tower Corporation, Post Office Box 498, Fremont, Indiana 46737.

CABLE LAYER SHANK ADJUSTS HYDRAULICALLY

A hydraulically-controlled shank adjusting assembly is now offered by Kelley Products, P.O. Box 3227, Houston, Texas, as an option for the Kelley cable layer. A heavy-duty 7" ripper cylinder, mounted atop the cable layer tool beam, extends or retracts to produce any required shank angle. With a number of shank mounting positions available, an unlimited range of angles can be attained. The new shank-adjusting cylinder assures instant penetration up to 48" maximum depth of bury. Tension on cables being laid is reduced to boost hourly production.

NEW SPLICING BUCKET MAKES AERIAL WORK FASTER

Time Manufacturing Co., 3131 Gholson Road, Waco, Texas, has announced the introduction of a new all-weather splicing bucket to fit its



Versalift units. The splicing bucket, complete with top, tent, heater and seat, allows the worker in the bucket to perform faster and in complete comfort, with all tools and accessories close at hand. Made of heavy-duty molded fiberglass, the bucket is equipped with a safety door with two tilt-out parts bins. The heater and tool-storage bin are located in an accessory cavity built into the wall of the bucket. The fiberglass top is raised to working height on a steel tube and locked into place. A vinyl-impregnated dacron tent attaches to the top with rust-proof smaps. Zippers and tiebacks permit work in any direction. When not in use, the top retracts to form a snug, weather-tight cover for the bucket.

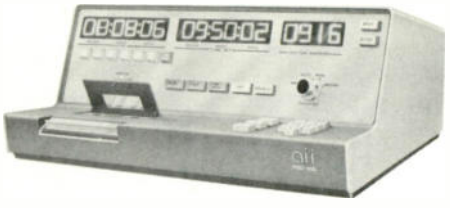
DYNASCIENCES EXPANDS IMAGE ENHANCER LINE

Three new image enhancers are now available from the Scientific Systems Division, Dynasciences Corporation, Blue Bell, Pa. 19422. Scientific Systems

notes that the scanning beam in a pickup tube has a finite size which tends to overlap adjacent picture elements. This results in the waveform having rounded rather than square corners. The Dynasciences enhancers are designed to correct for this and thereby improve the picture quality. The new items are the Model 832 image enhancer, the Model 852 contours from green, and the Model 444 video enhancer. Scientific Systems also introduced the Model 54 pulse distribution amplifier and the Model 72 video distribution amplifier.

NON-DUPLICATION SWITCHER NOW AVAILABLE FOR CATV

The PSC-100 is a new programmable switcher for CATV non-duplication switching, local program switching and for deletion and substitution of commercials. The unit is offered by Applied



Information Industries, 345 New Albany Road, Moorestown, New Jersey 08057. Switching instructions in the

form of digital coded tones are previewed and recorded on audio tape cassettes by office personnel using the integral keyboard. Tape memory capacity provides for more than 10,000 switching instructions which is more than ample for a week or even a month of programming. Time interval of switching is one minute with one second optional. Provision is made for override and abort, and instructions may be previewed and altered after recording. The unit provides an output of 20 solid-state switches and/or will operate a 19 by 19 matrix of 361 cross points. Circuit design utilizes digital computer technology with error detection and solid-state integrated circuit electronics. Moving parts are limited to tape drive.

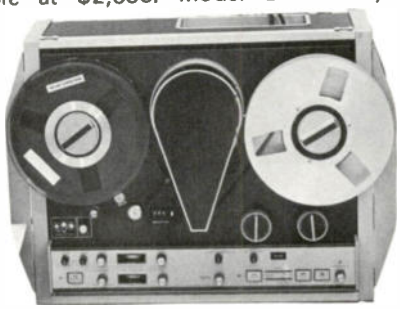
SONY CAMERA CLAIMS HIGH PERFORMANCE

Sony Corporation of America, 47-47 Van Dam Street, Long Island City, New York 11101, announces the availability of a new, high-performance monochrome camera for universal application in video tape recording and CATV work. The camera, model AVC-3210, incorporates a 2:1-interlace sync generator which allows video recordings to be made in slow- or stop-motion and permits switching, fading and wiping

operations without the need for an external sync generator. It incorporates an automatic light sensitivity control which compensates for a wide range of lighting conditions. The camera features a 2/3-inch, separate-mesh vidicon and solid-state design. Other features include a mechanical vidicon shutter and the option of a snap-on electronic viewfinder. Dimensions are 4¾" (H) x 4 3/16" (W) x 13¼" (L). Weight is 7 lbs., 6 oz. Manufacturer's suggested list price is $450.

FOUR NEW VTRs FROM AMPEX CORP.

Ampex Corporation, 2201 Estes Avenue, Elk Grove Village, Illinois 60007, has placed on the market a new VPR (video production recorder) Series of one-inch helical scan videotape recorder/players with advanced production capabilities and improved performance. The series includes VPR-7900, an advanced, versatile VTR. Model VPR-5800, a moderately priced teleproduction recorder "with greater versatility than any prior recorder in its price class," is available in a color version for $5,600, or a monochrome (upgradable to color) version for $4,950. Model BPR-5200, a teleproduction recorder featuring basic editing capability and high performance specifications, is available at $2,600. Model BPR-4500, a



monochrome (upgradable to color) playback unit, is available in a color version at $2,150, and in monochrome at $1,650. The four models are compatible with all Ampex one-inch helical scan models now in use. Tapes made on any model in the series may be played back on any other Ampex one-inch unit. All units operate at a tape speed of 9.6 ips, a writing speed of 1,000 ips and offer one hour of playing time on a 9½ inch reel of tape.

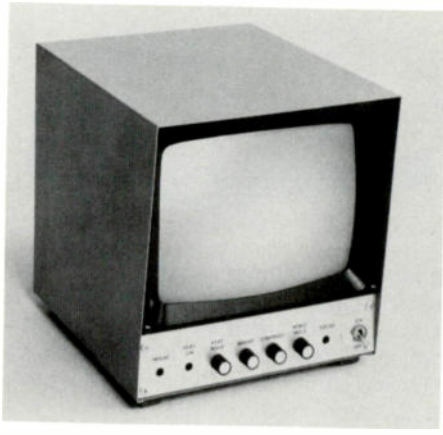
LIGHTWEIGHT MONITOR CAN OPERATE BY BATTERY

Panasonic has added a compact, lightweight solid-state television monitor for CATV and closed circuit TV. The model TR-910M, features 38 inches of viewing area. It delivers more than 450 lines of

horizontal resolution for video images of high contrast, and contains a 90 degree aluminized picture tube as well as all-transistor circuitry. Controls on the 15-pound unit are front-mounted for ease of operation. The unit operates on AC or by battery with an optional adaptor.

SC ELECTRONICS HAS FOUR NEW MONITORS

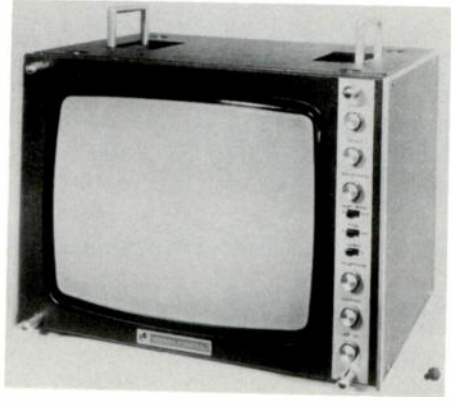
SC Electronics, Inc., 530 Fifth Ave., N.W., St. Paul, Minnesota 55112, has just introduced four new Setchell Carlson solid-state, professional quality monochrome video monitors. Model 10M915 is a 10" unit, model 6M912 is a 16", model 9M912 is a 19" and model 3M912 is 23". These monitors are designed for long-life reliability at a modest cost. All major operating controls are located on the front panel for ease of operation. Front-panel screwdriver adjustments are provided for vertical linearity, vertical height, and



focus to prevent accidental misadjustment. The power supply is regulated for state operation and prevents raster size or brightness deviations due to line voltage fluctuations. Video amplifier bandwidth is 8 MHz or better and horizontal resolution is 640 lines or better. Optional external sync provisions are available. Vertical and horizontal linearity tolerance is 2%. The 10" model weighs 15 lbs.; price is $189. The 16" model weighs 30 lbs.; price is $239.95. The 19" model weighs 40 lbs.; price is $254.95. The 19" model is also available in a rackmount version (Model 9M912R) which fits all standard 19" racks. The 23" unit weighs 60 lbs.; price is $293.95. For additional information, contact: Mr. Dar Hyatt, Marketing Manager, SC Electronics, Inc., 530 Fifth Ave., N.W., St. Paul, Minnesota 55112. Telephone: (612) 633-3131.

RANK INDUSTRIES OFFERS NEW TV MONITOR

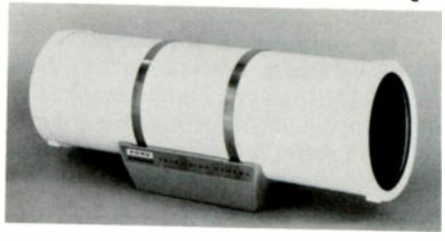
Rank Precision Industries, Inc., 260 N. Route 303, West Nyack, New York



10994, has introduced a monochrome television monitor. The 15-inch rectangular tube, with a 4 x 3 aspect ratio, is designed to be used for the critical inspection and evaluation of television signals. The unit's auto-line sensing capability provides automatic switching of scans between 525-line and 625-line incoming TV signals. With remote control available for brightness, contrast, video input and sync selection, the monitor may be rack mounted and has all solid-state electronics on fiber glass plug-in printed cards.

TWO NEW CAMERAS FOR SPECIAL CATV SERVICES

Production of the new model 6210 high-resolution camera has been announced by Cohu Electronics, Inc., P.O. Box 623, San Diego, California. The camera is designed for applications where the combined qualities of high-resolution and weatherproof housing are required. Bandwidths from 8 to 32 MHz provide scan rates from 525 to 1225 lines, horizontal resolutions to 1100 lines and vertical resolutions to 825 lines. A low-noise preamplifier insures constant picture quality. An automatic sensitivity circuit controls target



voltage, video gain, dark current compensation and high frequency response to optimize picture quality at all light levels. It is priced at $4,000. All camera functions are operated from the camera control which can be placed up to 2000 feet from the camera; this permits placement of the camera in normally inaccessible locations. Options and accessories include shading circuit to correct non-uniform response of pickup tube and lens, blanking generator to produce and insert blanking pulses in the video signal and remote-controlled pan/tilt units.

Riker Video, 142 Central Ave., Clark, New Jersey, has developed a new "ultra-high resolution camera" designed to provide horizontal resolution of over 1200 TV lines center and at least 1000 lines at the corners. The company claims that this is the first 1" camera to achieve 1000 line corner resolution at

high scan rates. The camera has applications in some of the "extra-CATV services" proposed for cable operations . . . video services where fine detail is required.

INDEX OF DISPLAY ADVERTISERS

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TV Communications is published by Communications Publishing Corp., publishers of CATV Weekly, the CATV Directory of Equipment, Services & Manufacturers, the CATV Systems Directory Map Service, the NCTA Convention Daily, and CATV Product Showcase.

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Rate for classifieds is 25 cents per word for advertising obviously of a non-commercial nature. Add $1.00 for Box Number and reply service, per issue. Advance payment is required; minimum order is $10.00. Classified rate to commercial advertisers is $30.00 per column inch (2-1/4" col.). Deadline for all classifieds is 1st of preceding month.

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

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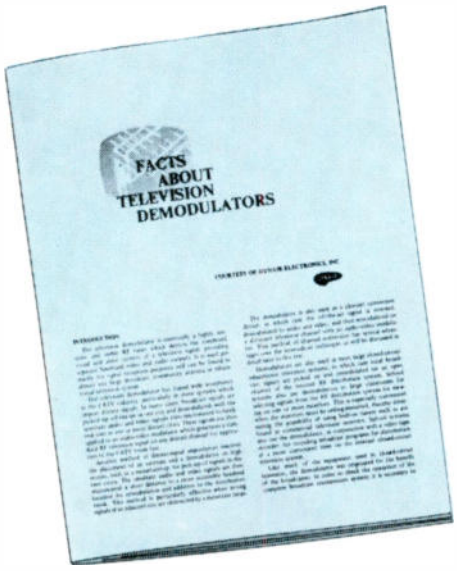
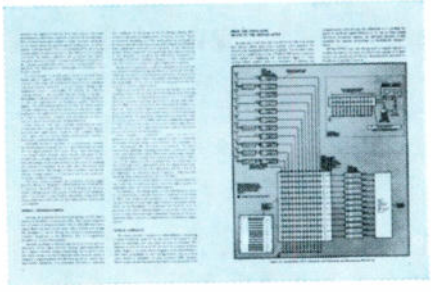


If you're wise, you won't purchase a demodulator until you read this free paper.

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

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

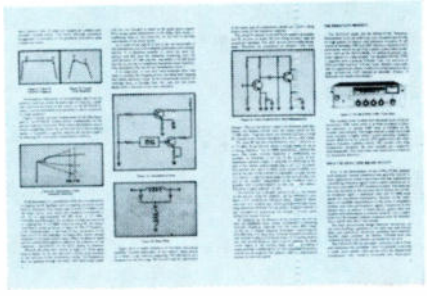


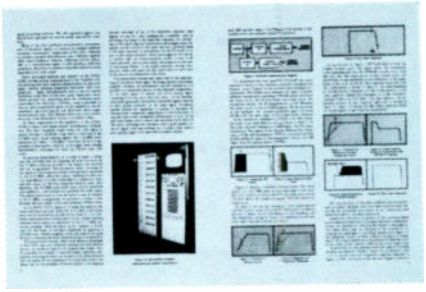
At first thought, it would appear to be a relatively basic design task to engineer a demodulator. Logically, it is often related to the tuner, IF and detector portions of a standard television receiver. However, it is one thing to design a demodulator which is acceptable for driving an ordinary viewing monitor and entirely another thing to design a demodulator which will be acceptable for testing purposes or for the regeneration of broadcast quality television signals. The demodulator portion of even the most sophisticated commercial television receiver would prove highly inadequate for applications such as those mentioned earlier in terms of sensitivity, stability and the amount of distortion introduced in the process of demodulation.

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

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

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





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

Shouldn't you add it to your information file?

It's yours for the asking.

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